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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff

E. R. ROOT A. I. ROOT H. H. ROOT J. T. CALVERT
Editor Editor Home Dept. Managing Editor Business Manager

"When we receive your Honey
Return mail brings your Money."

The Fred W. Muth Co.

Get Service Like this Man

Lake City, Mich., May 5, 1917.

Friend Muth:—Your letter with check for \$146.20 for wax has been received. Thanks. I do believe you beat them all when it comes to quick returns for goods shipped you. I may have some more wax to sell after we get our cappings melted.

Yours truly,
(Signed) Elmer Hutchinson.

We Want Immediately Extracted Honey

We buy all grades of Extracted Honey. Large or small lots. Send sample and price. If price is right we will buy. Parties who have Fancy and No. 1 Comb Honey, write us at once. We will buy from 40 to 50 carloads this season.

Beeswax

Send us your beeswax. We pay highest market prices, and send you our check the same day shipment is received.

Old Comb

Make some spare money from the wax rendered from your old comb. We will render it, charging only 5 cents per pound for rendering, and pay you best market prices for the wax rendered.

Shipping-cases for Comb Honey

We are prepared to ship you the same day order is received any number of shipping-cases. Several carloads are here now, ready for buyers. Send your order in now before our supply is exhausted. We sell Lewis Beeware.

Remember

We remit the same day your shipment arrives. Read the letter above and be convinced that this is the house to send your shipments to. Try us.

The Fred W. Muth Co.

"The House the Bees Built"

204 Walnut St., Cincinnati, Ohio

HONEY MARKETS

So many different kinds of reports are afloat that neither the buyer nor producer of honey knows what the price is or should be. That it is high is very certainly true, as the reading of the quotations below will show. That it may go higher is doubtful in view of the fact that granulated sugar has dropped in price within a month; so also has wheat and some other staples. Honey is likely to go up or fall with other food prices. If Congress shuts off the food-speculator, all prices may come down.

As the food-speculator seems to be abroad in the land, trying to corner the market on general food staples, it is possible and even probable that the same class of chaps are trying to corner honey. At all events, there is some evidence to show that some one has been trying to "bear" the market at the present time, claiming that the allies have discovered a cheap substitute—molasses at 6 cents that will take the place of honey, and that, therefore, the market on honey is going down; but careful inquiry shows no such product at this price on the market.

If it is true that the food-speculators are trying to corner honey along with other commodities, they will endeavor to "bear" the market while they are buying; and then when they have bought all the available supply, both present and future, will boost prices. They will be the fellows who will rake in the shekels, and the beekeeper may be berating himself because he was not in the final roundup.

No one knows yet what the crop of honey is to be this year. In many of the clover regions, owing to unfavorable weather honey is not coming in, and thousands of colonies at this writing (June 22) are or were on the verge of starvation, and the beekeepers waiting expectant for the shower of honey which they hope will come. A recent report from California shows that weather conditions are unfavorable.

The dry weather of last fall and the chilly and backward weather of this spring would indicate that the clover crop in some sections will be lighter than last year, which fact would have a tendency to boost prices. Over against this, frequent and copious rains, as shown by the Government weather maps, in the clover regions, would have a tendency to prevent a rise above the present level.

Orange and some sage has already sold as high as 13 and 14 cents in California; but some bottlers say that they cannot afford to pay above 10 or 11 cents, as a 12 and 13 cent extracted would make extracted at retail 30 or 35 cents against a comb honey of the same quantity for 25 or 35 cents. It is probable that the discriminating housewife would not pay more for extracted than for comb, quantity for quantity.

NEW HONEY CROP AND MARKET REPORTS.

We have the following special and late reports of the new honey crop, date of June 20:

Redland, Cal.—Crop less than one-half normal, mostly choice white; buyers eager at 13 to 13½ cents; darker, 11 to 12½; alfalfa districts prospects much below normal; crop mostly sold. A few are holding for 15 cents. Hottest in 40 years, being 120 in the shade; plants badly injured; prospects very poor.

Los Angeles, Cal.—Honey secured is only 25 per cent of normal; estimate, 40 per cent for season in south; quality excellent; buyers very active, paying 12 to 14½ to producers; white, better. A few producers are holding for 15 cents. Retail market unsettled, little used, not worth quoting. Extreme heat burning flora and bees melting down; also great damage by fires.

San Jose, Cal.—Very little new crop honey ready for market. Season late owing to cold weather. Light-amber mustard honey (canned) selling for 10 cents. Some holding for 12. Buyers offering from 8 to 12 cents according to grade; all demand is for extracted. One-half crop or better in northern California.

Texas.—Two-fifths of crop is lost; one-fifth of normal crop is now harvested; additional two-fifths will be normal. Quality is normal. Tendency of buyers to contract early for entire crop. Ten to 12 cents is asked for extracted. Some are holding for 15 cents. Continued drouth may reduce normal yet to harvest.

Florida.—This state's honey crop is very light; comb honey a failure due to freeze and dry weather. Prospects for future crop good. Quality good. Buyers offer one dollar F. O. B. Sanford for crop. Producers holding at 55 to \$1.75 F. O. B. market.

MARKETS BY CITIES

NEW YORK.—Comb honey, old crop, is fairly well cleaned up, with the exception of lower grades, of which there is still some in the market, but no demand to speak of. As to No. 1, or fancy white, there is some which has been carried over; but the demand is not as good as it formerly was, and hard to find buyers at around 13 to 14 cts., and this in a small way only. For extracted honey, the market appears to be in a very unsettled condition, and all kinds of prices are being quoted. Last year's crop is practically cleaned up, and receipts from the West Indies have been rather light of late; but it appears that a good crop has been produced in the southern states, and is now beginning to arrive quite freely. The demand is fair, at prices varying from 90 cts. to \$1.20 per gallon, according to quality.

New York, June 18. Hildreth & Segelken.

CHICAGO.—As yet, none of the yield of 1917 has appeared on this market. There is no honey to be had among the jobbers, and very little is left in the hands of retailers; hence there is a probability of higher prices on the new crop when it comes, and we should have some by the time this appears in print. We expect now to get 17 to 18 cts. per lb. for the comb that will range from No. 1 to fancy, and it may be that we can get a little more for a time. Extracted is commanding at the present time from 12 to 14, for the reason that there is practically none offered in clover or the other white honey. Amber grades are also absent, including buckwheat. Beeswax is steady around 35 cts. per lb.

Chicago, Ill., June 18. R. A. Burnett & Co.

LOS ANGELES.—All old crop of extracted was cleaned up two months ago. Small stocks of comb held over with price normal, but new crop of extracted prices are soaring to the skies. Some producers are holding for 15 cts. in car lots for white orange, some having sold at various prices ranging to 14½ cts. f. o. b. Demand is active, crop limited. Little sage is out yet. Too much variation in local market to make quotations useful.

Hot wind continues, bad fires in hills and lots of bees melting down. This will affect honey production seriously. Many beemen report "no more honey."

Los Angeles, Cal., June 16. Geo. L. Emerson.

PHILADELPHIA.—From our observation of our honey market, under grades of comb are nearly if not all sold. We have been entirely sold out of sub-grades for some time. There is some fancy old comb on the market which is being held at around 18 cts. for well-filled combs. As to demand, there is none in our market until early fall. As to new

honey, we have had a few inquiries as to probable prices on comb, but no shipments worth speaking of. We have had a small quantity of comb from North Carolina of nicely filled combs, but amber in color. No demand at present, but think the same should bring 14 to 15 in season. Charles Munder.
Philadelphia, Pa., June 21.

PORTLAND.—The stock of old comb honey is about cleaned up, but the demand remains good. At present there is no new comb honey on the market, on account of the lateness of the season and the excessive freight rate on local shipments by rail—double first class. No quotations from any of local beekeepers yet on new extracted, other than California dealers, who quote water white at 10 cts., and in a few instances 12; amber at 9 and 10.

Portland, Ore., June 11. Pacific Honey Co.

SAN FRANCISCO.—No honey of the old crop is in the city. Some new lots of honey are coming in from the orange and sage sections, and bring pretty high prices, ranging from 11½ to 12½ for the lighter grades. It is too early yet here to make regular quotations. The demand for darker grades is not very brisk, and it is only early white honey and light ambers that receive attention.

Leutzinger & Lane.

San Francisco, Cal., June 15.

KANSAS CITY.—There is very little if any old honey on this market. Comb honey is entirely cleaned up. There is a little new honey on the market, but it is light weight and sells at \$3.65 to \$3.75 per case. The demand for comb honey is good. Do not know how the trade is going to accept extracted honey this season at the high prices now being asked for the same. C. C. Clemons Bee Supply Co.
Kansas City, June 18.

CLEVELAND.—Old comb honey is practically used up and there is scarcely any call for it. A small quantity fancy would sell at about \$4.00 per case of 24 sections. We have seen no new honey yet except a small sample shipment from Florida. Fancy light and amber—a little of it would probably sell at \$4.25 to \$4.50 for fancy and \$3.75 for amber. The extremely high freight rate however is almost prohibitive. C. Chandler's Sons.
Cleveland, O., June 22.

BUFFALO.—White honey is about cleaned up and there is a very small amount of dark buckwheat honey on this market, we hardly believe that there is over 2000 pounds of honey to be found on this market at the present time. The demand is only fair—in fact, sales are being made practically only in single-box lots. Gleason & Lansing.
Buffalo, N. Y., June 22.

DENVER.—Neither comb nor extracted honey in this market. The old crop has been exhausted for some time and it will be at least several weeks before any of the new crop will come in. The prospects are only fair. We are in the market for beeswax and pay 38c per lb. in cash and 40c in trade for clean yellow wax delivered here.

The Colorado Honey Producers' Association.
Denver, Col., June 19. F. Rauchfuss.

ST. LOUIS.—Extracted and comb honey are cleaned up. Good amber in 60-lb. cans, would easily bring from 11 to 13, and in barrels from 8½ to 10, according to quality. So far no new honey has arrived here from the South. Beeswax is quoted at 42 for prime. R. Hartmann Produce Co.
St. Louis, Mo., June 18.

PHOENIX.—The 1916 crop of honey has been an article of the past for many months. Demand great. The new honey has been on our market for a few days at very high prices, quality fair. Some mesquite of extra quality will move about July 1 at approximately \$12.00 and over per case. Many buyers—light crop. Wm. Lossing.
Phoenix, Ariz., June 13.

TEXAS.—Terribly severe drouth in southwest Texas for several months, and honey crop here is almost a total failure. No old honey on market for several months. A few small shipments have been made of huajilla and catclaw of the new crop that

finds ready sale at 12 cts. for the bulk comb and 10 for extracted, packed in two 60's with half-cent rise for the smaller sizes per pound. The high prices for wax have taken up the surplus. J. A. Simmons.
Sabinal, Texas, June 13.

TORONTO.—We are really not in position to state exactly what quantity of old honey remains on this market. Stocks of honey in this city are held by so many different parties who do not make reports on them that it would be quite impossible to make a reasonable guess. The stock in the hands of the honey-producers, we are informed, is completely exhausted, and the demand, owing to the arrival of some new fruits, has slackened up considerably. There is at present no new honey on this market, altho we expect the first deliveries about July 1. Eby-Blain, Limited.

Toronto, Can., June 19.

MONTREAL.—No new honey has been marketed yet. Buckwheat honey is particularly cleaned up. There is some white-clover honey, but the quantity is not large. No. 1 comb is selling from 17 to 18; extracted, in barrels, 13; tins, 13½ to 14. Gunn, Langlois & Co., Ltd.

Montreal, Can., June 18.

CUBA.—Have just entered into a honey-flow preceded by a flow from mangle; and during May I secured 300 barrels of 50 gallons each; and during this month I may get 200 barrels more; and I may even have a flow up to November. This honey has been sold for use in France. The yield of honey in the country will be very light—probably not 1500 barrels. Adolfo Marzol.

Matanzas, Cuba, June 12.

MEDINA.—The 1916 honey crop is practically off the market and worthy of no attention now. The 1917 crop has begun to move in a very limited way from the Southern states and southern California, but it is too early to forecast the crop of the United States. Severe winter losses in a few localities will be offset by the excellent conditions of bees elsewhere. The season is 10 to 15 days late thruout the entire North, but promises well at this writing, provided favorable weather continues for the next 30 days. If bad weather follows, the crop will be shortened accordingly. For white extracted honey, we believe the price for domestic trade will average 25 to 40 per cent above last year. We are contracting for comb honey at prices ranging from last year's standard to 10 per cent above. We believe that white extracted honey in eastern localities will net producers 10 to 12 cts.; comb honey, 14 to 16. The wide variation in quality, as well as the style of package, makes it impossible to quote more definite general prices, and the necessity for well-defined standards is more apparent every day. Advice received just as we write this indicate that more favorable weather has followed in California, and the market is reported easier there. The A. I. Root Co.

Medina, O., June 25.

U. S. GOVERNMENT MARKET REPORT.

Here is the first semi-monthly honey market news report from the Office of Markets, U. S. Dep't of Agriculture, date of June 15:

Kansas City.—No carlot receipts. Old supply practically exhausted. Good demand. No. 1, comb, mostly \$3.65 to \$3.75 per case. No. 2, cleaned up. Extracted practically exhausted; pails, white, 11½ to 12, amber, 11, quoted for Missouri honey. New crop late. Will begin to move about July 1.

Denver.—No receipts. Old crop exhausted. New crop will start moving about July 15. Season late.

Philadelphia.—Arrivals approximately 14 barrels Southern and 13 barrels Mexican. Market very unsettled, practically no sales. Cuban and Mexican quoted 12½ to 13. Comb, no arrivals and no sales.

Chicago.—No receipts. Supply negligible. Occasional sales to old customers at 12 to 13.

Cincinnati.—No carlot receipts. Market bare.

St. Louis.—No receipts. All honey out of first hands. No recent sales. New crop not available until July or August.

New York.—Arrivals, 277 barrels Cuban of about 50 gallons each. Other receipts light. Extracted Southern, \$1.00 to \$1.25 per gallon. Some sales. Cuban for export reported as high as \$1.80 per gallon. No comb honey.

Northern-bred Italian Queens

Our queen-rearing apiary is in charge of Mr. M. H. Hunt, Redford, Mich. . . We offer choice stock, and guarantee safe delivery. . . Orders filled in rotation as received.

Untested Italian Queens . . .	each, \$1.00; three for \$2.75	
Tested Italian Queens "	2.50; "	7.00
Select Tested Italian Queens . . "	3.00; "	8.00
Select Breeding Queens "	5.00	

Will give special rates on quantities on application.

M. H. Hunt & Son, Lansing, Michigan

General Agents in Michigan for Root's Bee Supplies

NOTICE!

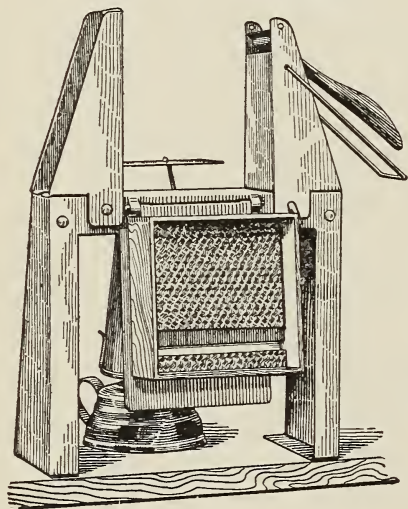
Honey . Wanted . Honey

Do not forget, when your crop of honey is ready for sale, to send us a sample. State your price, also how it is put up. We are in the market for unlimited quantities, and will pay cash on arrival. Let us hear from you before selling your crop.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

NEW BINGHAM BEE SMOKER



In 1878 the original direct draft bee smoker was invented and patented by Mr. T. F. Bingham of Michigan. Mr. Bingham manufactured the Bingham Smoker and Bingham Honey-knife for nearly thirty-five years; and in 1912, becoming a very old man, we purchased this business and joined it to our established business of beekeepers' supplies and general bee-

ware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men and it gives us much pleasure to help perpetuate his name in the beekeeping industry. Bingham smokers have been improved from time to time, are now the finest on the market, and for nearly forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies or direct from the manufacturers.

Smoke Engine, 4-inch stove. \$1.25
 Doctor, 3½-inch stove.85
 Two above sizes in copper, 50 cts. extra
 Conqueror, 3-inch stove.75
 Little Wonder, 2½-inch stove.50
 Hinged cover on two larger sizes.
 Postage extra.

Woodman's Section-fixer

A combined section press and foundation-fastener of pressed-steel construction. ONE OF THE GREAT ADVANTAGES this machine has over all others on the market, in the putting in of top and bottom starters is, YOU ALWAYS HANDLE LARGE PIECES OF FOUNDATION. You know how hard it is to set small narrow pieces for bottom starters. With this machine a large piece of foundation is set and the hot plate is again used to cut it off, leaving the narrow bottom starter. What is left of the large piece is then set for the top starter. Another advantage is the section always comes

away from the machine right side up with top starter, large piece, hanging down, and does not become loosened in reversing as with other machines.

Price of machine \$2.50; with lamp, \$2.75. Weight 5 lbs., postage extra.

Tin Honey-packages

A local wholesale house secured a carload of tin plate in September that was promised for April. Conditions are now even worse. When it is necessary to order tin plate a year or more in advance of the time it is wanted for use, advances in prices must be expected. The highest bidder will get the stock. Freight at this time is very slow and uncertain. Prices are liable to advance. It would be a wise thing to secure your packages for the 1917 crop. Our three-year contract is giving us some advantage over general market quotations. Send us a list of your requirements at once.

FRICTION-TOP TINS

	2 lb. cans	2½ lb. cans	3 lb. cans	5 lb. pails	10 lb. pails
Cases holding	24	24	...	12	6
Crates holding	50	50
Crates holding	100	...	100	100	100
Crates holding	603	450	...	203	113

A. G. Woodman Co., Grand Rapids, Michigan

Parcel Post for Small Orders

You may be in need of foundation or sections. If so, you will get it delivered quicker and right to your door. . . .

5 lbs. Foundation	will take	11c
2 lbs.	”	8c
1 lb.	”	6c
500 Sections	”	41c
250	”	24c
100	”	11c

Remember Foundation has advanced 10c per lb.
Parcel-post shipments have increased wonderfully.

F. A. Salisbury, Syracuse, New York
1635 West Genesee St.

WE NEED HONEY

Our local sales of honey have increased greatly in the last year or two, and we need much more extracted honey than we can produce for our trade. Before selling your honey let us have a chance to make a price on what you have to dispose of. Send us a sample; tell us the amount you have and how put up, and we will tell you what we can offer spot cash for it.

Save Your Combs and Cappings

and send them to us. Our high-pressure outfits and special equipment will get out all the available wax. The extra wax we get usually more than pays for rendering charges.

For your share of wax we will either pay you the highest cash price or work it for you into

Dadant's Foundation

If your bees are not already acquainted with DADANT'S FOUNDATION you should give them a chance to test it. Their action will be more convincing than our words, "Best by Test."

One prominent state inspector in the east wrote us in June:

"Dadant's Foundation is Perfect."

It represents our best efforts. Satisfaction guaranteed, and prompt returns as soon as shipments reach us. Write today for shipping tags and beeswax prices.

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

JULY, 1917

EDITORIAL

A discussion of honey and market crop conditions will be found in market page elsewhere.

IN THESE DAYS, when our attention is being called to the necessity for conserving



**DON'T THROW
AWAY GOOD
BEESWAX**

every kind of material, bee-keepers should not forget that it is very easy

to throw away dollars — yes, hundreds of dollars—in scraps of beeswax. Now that wax has become so much more valuable, it is all the more important that the waste be reduced to the smallest possible amount.

A small bee-tight and honey-tight tin box should always be carried when one is working about the apiary, as a part of the regular tool kit or equipment, to hold the scrapings and bits of burr or brace combs. This box must be tight so that any honey may not leak out and attract robbers.

The box should be emptied, when full, into a solar wax-extractor, which for such purposes need not be very large nor expensive. Such an outfit will more than pay for itself in convenience, for it costs nothing to operate it, and the resulting wax is always of the very finest quality. The bee-keeper who throws away or burns up the refuse from a solar extractor is making a wasteful mistake, for it contains anywhere from twenty-five to fifty per cent of wax. Such material should always be run thru a good wax-press. It should be saved, in barrels, to be rendered out during the winter months when time is less valuable.

**CAUTION IN THE USE OF SULPHURIC ACID IN
CLEANSING BEESWAX.**

If one has the proper equipment sulphuric acid may be used for refining wax. Since the acid will attack iron or copper the most practical material for a tank is lead. A wooden vat must be used, therefore, lined with sheet lead, the heat being introduced into the water in the lower part of the vat by means of steam. Water should be pour-

ed in until the vat is a little less than one-third full, then the steam turned on and the wax cakes thrown in as rapidly as they melt, until the vat is nearly full. When the whole contents have become thoroly melted a very small amount of sulphuric acid should be poured in. Light-colored wax needs less than dark dirty wax. About three ounces is sufficient for a hundred pounds of average wax. The boiling should not continue very long after the acid has been added. One-half minute to two minutes is sufficient, then the vat should be covered up and the impurities, carbonized by the sulphuric acid, allowed to settle into the water under the wax.

IN VIEW OF THE unprecedented condition of the honey market (along with un-



**A GENERAL
DISCUSSION
INVITED**

precedented conditions of all markets.) GLEANINGS is

going to invite its readers, one and all, to join in a general discussion in its August number of present honey-market conditions and price prospects for the 1917 crop. "How to get the most for our honey" is the general theme that we ask our readers to discuss—and to do this with absolute freedom. Any man or woman who has any idea worth while, an experience that teaches a lesson, or a bona-fide honey-market quotation that has not been printed heretofore—we want it for GLEANINGS' columns.

Tell the truth, give the facts, frame the ideas clearly, do this briefly, and we shall be glad to print it.

Let us emphasize that we wish to have this discussion carried on with absolute freedom. Hew to the line and let the chips fall where they may. Give us your ideas, give us your facts, give us any genuine offer that you have had made you for your honey (telling who made it), give your experience. By so doing you may

help yourselves and others get a better price for the 1917 crop of honey.

The A. I. Root Company are the publishers of GLEANINGS IN BEE CULTURE. The A. I. Root Company are the owners of the great Airline honey business. A. I. Root, E. R. Root, and H. H. Root are the editors of GLEANINGS. The A. I. Root Company and the editors of GLEANINGS join in asking for this fullest and freest discussion of every element in the honey market. They together are ready and glad to invite the honey-producing public to this discussion. All they ask is that articles contributed to it shall be to the point, shall be brief, and shall reach GLEANINGS office by July 12 at latest.

"Come, let us reason together."



AS MENTIONED elsewhere in this department, we have stated that many of



DIAGNOSING COLONIES FROM THE OUTSIDE

our yards are betwixt swarming and starvation. In order to get a rapid survey of an apiary the editors have been diagnosing from the outside. A heavy flight of bees at the entrance indicates a fairly good colony. Its weight indicates something as to the amount of stores. The mere lifting of the cover with three or four puffs of smoke over the tops of the frames will show whether a colony is clean out of stores. After the smoke disappears, if there is any honey at all the bees will be seen with their heads dipped into the cells along near the top-bars; for smoke will always drive some bees to drinking honey. If every cell except those containing brood is dry, there will be no bees thus occupied and the hive should be opened up.

Another surface indication is the behavior of the bees toward the drones. If they are pushing one or more drones out of the entrance it indicates a stoppage of the flow or a shortage of stores.

Queenlessness can often be guessed when the cover is removed by the behavior of the bees.

Very recently we took a series of surface indications in one whole yard; then we went over it afterward in detail, examining the combs of the colonies. We found that the outside diagnosis was correct in almost every case.

When short of help we have relied to a considerable extent on external indications, and have found it works fairly well. A whole apiary can be gone over in a com-

paratively few minutes, and the remedy applied to those needing immediate attention.

Of course outside diagnosing can not be carried too far. It depends on what we want to know.



IN CLOSING a discussion of the honey-container situation in June GLEANINGS, we



THE HONEY- CONTAINER SITUATION

said: "At this time we cannot say more to our readers as to 'where and how to procure containers.' We do promise them that we will give them the fullest information that either GLEANINGS or The A. I. Root Company may secure concerning any practical method of meeting the present critical need for satisfactory and economical honey-containers."

We regret to say that we cannot report any immediate or prospective change in the prevailing scarcity of glass containers for honey. So far as we can learn, the glass manufacturers are not putting out any glass containers except for use in preserving perishable food stuffs. What glass containers for honey can be secured by even the largest honey-bottlers are secured "hit or miss," "catch as catch can." The manufacturers are generally turning down the honey-bottlers' inquiries for contracts and deliveries or quoting enormously advanced prices without promise as to date of delivery.

Has the fiber container arrived as a substitute for the glass honey-container?

It has not, if railroad transportation is to be required of it. The fiber container (a treated paper product), with which The A. I. Root Company has been experimenting, has been given the test of railroad shipment. Cases (24) of these containers filled with honey were shipped in corrugated boxes to the several official railroad classification committees for approval and acceptance. These containers arrived at their destinations leaking badly, and so were rejected by the classification committees. The manufacturers of these containers now say that "it will take a little further experimenting and planning to work this out." So there is hope of a future fiber container that will stand railroad shipment, but it is not immediate.

However, this fiber container, we feel sure, will serve the purpose of a container for those who sell to the home market without railroad shipment. This in itself is important, and will serve many honey-producers.

The tin-can situation, so far as we can

learn (and so far as The A. I. Root Co. can secure information from the manufacturers) remains the same as a month ago. The dealers have limited stocks of five-gallon cans. They don't know and cannot learn whether they can secure more. One of the largest tin-can manufacturers in the country writes under date of June 9, in reply to an inquiry for five-gallon cans, as follows: "We have sold our entire output of these cans for perishable foods for this season. However, if you give us some idea of how many you desire, we will see what we can do to accommodate you." That expresses the exact situation in tin cans—acute shortage and uncertainty.

We think our advice of last month to producers of honey who must ship their crop was good and is good—inquire of their dealers for tin cans; and, failing there, have recourse to barrels.

Producers of honey that granulates quickly (alfalfa and sweet-clover honey) may take hope in a new sort of "Aikin" bag of paraffined heavy manila paper of a size to hold five gallons and to be contained in a fiber-board box. It is not expected that the railroads will raise any objection to this form of shipment; and the decided advantage of it is that the paper bags and fiber boxes can be shipped in the flat, greatly reducing freight charges as compared with tin boxes, and the cost of them will be from one-third to one-half less than the tin.

That is the honey-container situation so far as we know it today.



ON ACCOUNT OF the winter-killing of alfalfa in the middle West, the Government

is urging farmers to put in Grimm alfalfa. It is suggested that half-acre plots be tried alongside of the common varieties. This

alfalfa grows without irrigation with a rainfall of less than 14 inches, and it is said to stand a winter temperature as low as 57 degrees below zero.

GLEANINGS wishes to suggest that the alfalfa-growers, where they have winter-killing, put in sweet clover. In fact, we positively know that in many sections of Illinois and Iowa sweet clover is being substituted, because it grows more readily, and because it stands unfavorable conditions better. While it has not quite the food value for stock that alfalfa has, it comes very near it, and is much easier grown; and besides this it is a great honey-plant. This is the only excuse we have for butting in on Government advice to farmers.

AS POINTED OUT elsewhere in Straws, we believe we never had a year when bees bred up faster than *BETWIXT STAR- this spring, and that, VATION AND too, in spite of the SWARMING* chilly weather and a large amount of rain.

A colony that is breeding heavily uses an enormous amount of stores. At the present time, June 14, clover is just on the eve of opening up, and our colonies are living from hand to mouth. Disliking to feed, we have been drawing on our sealed stores. These are running low; but every day we are expecting an onrush of clover honey. In the mean time some colonies are on the verge of swarming; and probably, when the first rush of nectar comes in, some of them will come out, altho we tamed them down by taking away from them hatching brood and giving to the medium colonies.



OUR READERS WILL be interested, perhaps, in the article by E. R. Root, and particularly the one by *SWEET CLOVER* Dr. E. A. Morgan, *AND ITS FUTURE* "the A B C scholar *IN THE MIDDLE* who grew so fast," on *WEST* the subject of sweet

clover and how to develop a poor bee territory into a veritable paradise for bees. The former law-breaker turns out to be a public benefactor—the man who sowed sweet clover and scattered it along the highways. It seems to be one of the very few cases where law-breaking is justifiable for the good of the public. Do not forget to read what Dr. Morgan says, on page 515 even if you do not read anything else these busy times.



IT IS COMING to be generally believed among the fraternity that a colony may be

too strong at the beginning of the clover harvest. Why? Because it is likely to swarm as soon as the first rush of nectar

comes on. Operating on this theory this spring we have been taking hatching brood away from the very strong to give it to the medium colonies that are a little below par. It is somewhat surprising to note what "pep" one or two frames of hatching brood will give to a medium colony, especially this season. Our colonies this spring are of more nearly even strength than ever before in our history. If clover comes on properly, we ought to get something of a crop.

HORACE

Greeley,
when he
gave out the
slogan in the
early 60's, "Go
west, young
man," must have
had in mind the

territory comprised by Indiana, Illinois, Iowa, Michigan, Wisconsin, and Minnesota. At all events, beginning with the western part of Ohio the soil seems to grow richer and darker, increasing in fertility and depth clear up into Kansas, Nebraska, and the Dakotas.

Some of the most productive land it has ever been my pleasure to see has been on a recent trip across the country to attend the field meet at Sioux City, Ia., located on the western border, and overlooking Nebraska and South Dakota. Indeed, from the hills around the city itself one can look over into three states.

Where I have seen good deep rich land on my various trips I have also found that bees flourish. The real honey-plants that yield table honey in quantity grow on good land, as a rule, altho there are some marked exceptions, as in the case of mountain sage of California and the sweet clover of the whole United States. But sweet clover thrives better on good land.

When all patriotic farmers are speeding up food production thruout the country, it did my heart good to see the immense amount of land that is being cultivated this spring. I think I never saw so much plowing and harrowing. Pastures and meadows are being plowed up to grow wheat and corn. The plowing up of clover-fields did

BEEES IN THE MIDDLE WEST

*Sweet Clover Making a New Future
for Beekeeping in a Land Already
Favorable for Honey Production*

By E. R. Root

not make me happy, but I said if the world can be better fed by plowing up our meadows and pastures of clover, then I welcome it. As

a general thing, land devoted to corn and wheat does not help the beekeeper except in a very small way, for the pollen; but land plowed to alfalfa, and especially to sweet clover, means a great deal to the honey-producer.

The thing that delighted me was that many of the western ranchmen are beginning to learn that sweet clover is almost as valuable as alfalfa. It grows more readily than alfalfa, and as pasture does not bloat cattle like alfalfa. The result of it is that the business of honey production in the middle West is starting up in a way that is going to mean a great deal for the future of the beekeeper.

In the western part of Iowa the land is more rolling and quite hilly. Some of the hills are so steep that it is impossible for either plow or harrow to reach them. But some of the ranchmen have learned that sweet clover will grow on these tops. All that is necessary, I am told, is to scatter seed over these hills and let dame Nature do the rest. When the sweet clover gets well under way, the cattle and bees are turned loose.

As my train neared Sioux City, Ia., I noticed the land became more rolling and hilly, with vast stretchs of deep rich land between the hills. The soil is so deep and rich that it needs no renewing; and the mar-

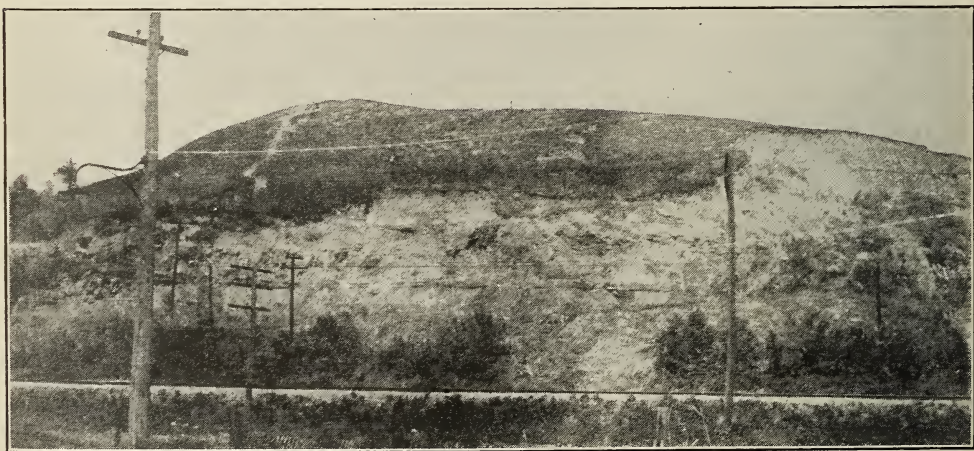


Fig. 1.—Sergeant Bluff, near Sioux City, Ia. This is one of the characteristic hills in western Iowa, on top of which sweet clover is grown.

velous thing is that corn is grown in some of the valleys for thirty years with no fertilizer. More remarkable still is it that the hills have just as rich and productive land as the valleys, but with less moisture, of course. But some ranchmen have discovered that sweet clover will grow on these hills; and where this fact is known bee-keeping has jumped ahead by leaps and bounds. The farmer is pleased also because he can grow more cattle and hogs.

As I looked over the territory in and about Sioux City I wished more than once I was a young man, and that I could avail myself of Horace Greeley's advice, squat on some of this land, grow wheat, alfalfa, corn, sweet clover, cattle, and last, but not least, bees and honey. I think I never saw deeper and more productive land than in the vicinity of Sioux City, Ia., except, perhaps, in one other locality and that was Imperial Valley, California, where it is claimed that the land there for soil productiveness is equal to the far-famed land of the Nile Valley of Egypt, where Pharaoh grew corn in anticipation of the seven years' famine.

It is almost impossible to show in a photograph land that spans miles of territory; but Figs. 1 and 2 give views of some of these "knobs," as I call them, where sweet clover seems to thrive so luxuriantly. Fig. 1 is a view near Sioux City, adjoining one of the characteristic knobs where the banks are so steep that no agricultural machinery will ever be able to climb—not even a gasoline-tractor; but man and beast, by walking back and forth, on so-called "cat tracks," can gain the summit. One can scatter the seed of sweet clover, and the beasts and the bees furnish the milk and honey as well as the meat.

Fig. 2 shows a more distant view of that country; and on the right one gets an idea



Fig. 2.—A couple of sweet-clover hills near the apiaries of the Western Honey-producers, Sioux City, Ia.

of some of these veritable little mountains. Near the creeks and rivers the clovers thrive luxuriantly, and everywhere white clover is very much in evidence. I found it in the valleys, and I found it on the hills. Altogether I believe Iowa is destined to be one of the greatest states for sweet-clover production, and with the white clover will stand in the front rank. If there is any land in all the United States equal to that offered to the children of Israel it is this middle West.

THE WESTERN HONEY PRODUCERS.

This is a rather long introduction to the brief story I am now about to tell of the apiaries of the Western Honey Producers in Sioux City, Ia. Mr. Southworth is the man who looks after the buying and selling of honey; and his partner, Mr. E. G. Brown, is the one who attends to the bees. The Western Honey producers not only produce honey in carlots, but they buy carloads and carloads of it to take care of their bottling trade. Last year, Mr. Brown, with 320 colonies spring count, produced 49,000 pounds of honey and increased to 509. This year he has set his stakes to make an increase up to 1000 colonies and to secure 80,000 pounds. He believes the conditions are fav-



Fig. 3.—The Belfrage apiary, bee-cellar, and extracting-house of the Western Honey-producers.

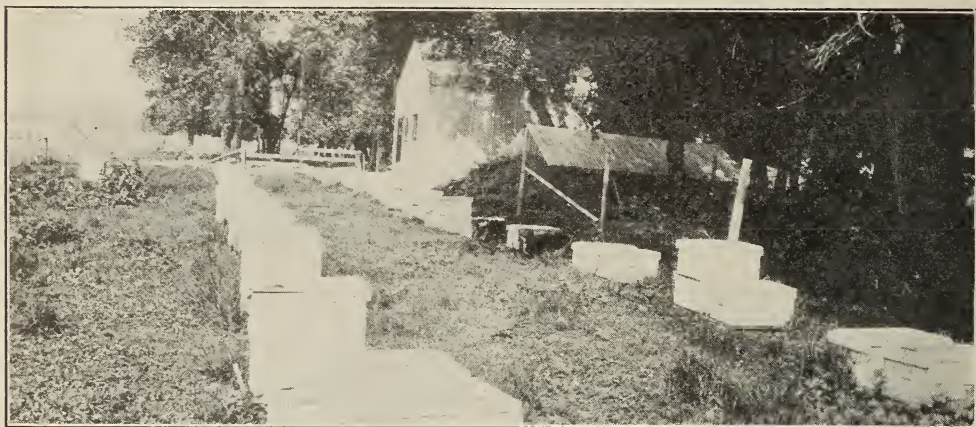


Fig. 4.—The Glen apiary, bee-cellar, and extracting-house of the Western Honey Producers, Sioux City, Ia.

orable from the outlook of white clover and sweet clover in the vicinity of their yards. Fig. 3 shows one of their yards, the Bel-frage; Fig. 4 is the Glen yard. In both will be seen their bee-cellars, costing only \$25.00, a description of which will be given this fall. In this part of the country the winters are so severely cold that cellars seem to

give the better results. Apparently Mr. Brown is having perfect success in wintering. Next October I hope to give some of the secrets of his success.

In the meantime I introduce you to Mr. Brown himself in Fig. 5—a man who does a large part of the work himself with the assistance of his partner, Mr. Southworth. He is not only an expert beekeeper but a man who knows how to get practically every ounce of wax out of what most men would consider clean slumgum. That method will likewise be described later.

THE SIOUX CITY FIELD MEET.

On May 23, at the home yard of Mr. Brown, was held the Sioux City field meet. Fig. 6 shows the guests sitting down at dinner; and Fig. 7 a somewhat larger crowd on the lawn with Prof. F. E. Millen, of the Iowa State College, addressing the crowd. Among other addresses was one of Mr. M. G. Beals, of Oto, Ia.; one from R. A. Morgan, of Vermilion, S. D.; B. A. Aldrich, of Smithland, Ia.; and your humble servant.

The field meet was a success from every point of view, especially as shown in Fig. 6.

MR. BROWN AND THE FORD AUTO.

Mr. Brown explained to me that he could not get along with his beework without his Ford automobile. He had one machine that he said was like the boy's jack-knife. It was the same original knife except that it had had six new blades, three or four new springs, and a couple of new handles. Well, this Ford, which he called his old reliable, which he used to take me over the hills to see the sweet clover, the alfalfa, and the corn, had two of the old original wheels, the chassis, and most of the engine. All the rest was new. One feature of the

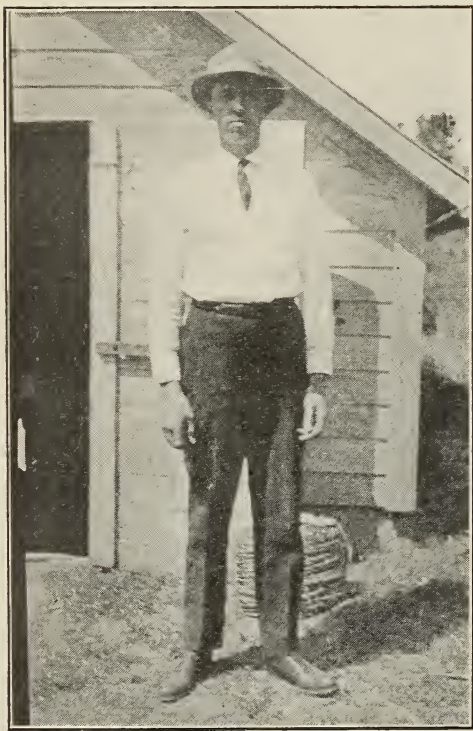


Fig. 5.—E. G. Brown, manager of the Western Honey-producers' apiaries near Sioux City, Ia.

Ford is that repair parts can be bought at a very moderate figure. When one part plays out when the rest of the machine is good, a moderate sum will buy a new one. In this way the original cost of investment is kept down, and the machine kept in action. The Western Honey Producers use three machines, all Fords.

The other day some one asked me how much Henry Ford paid me for booming his automobile. I answered him by saying that Mr. Ford probably does not know me among the hundreds of thousands of his customers; and even if he did, he would not be likely to tip me off. All I can say is that the Ford is a cheap machine, reliable, and for quick runabout work and light truckwork there is nothing quite its equal for the money. If one plans right, a little Ford with a wagon-box on the rear will handle a series of outyards, and do practically 95 per cent of the hauling.

A LAW-BREAKER WHO TURNED OUT TO BE A PUBLIC BENEFACTOR.

[Our older readers will remember Dr. E. A. Morgan, whom A. I. Root, as long ago as 1876, dubbed "the A B C child who grew so fast;" for he was a reader of the A B C book, and was making wonderful progress. From time to time he gave some account of his successes. At that time he was in Wisconsin, but later on he moved to South Dakota, where he began to distinguish himself again.

He is no longer a "child" in the business, as he has now come to be one of the Gamaliels at whose feet we delight to sit and listen.

The story he is about to tell is right in line with the story that E. R. Root has told just preceding, and he was just beginning to fear that perhaps some might doubt his word as to the possibility of sweet clover in this middle-west country. But here comes Dr. Morgan with the best kind of support.

We hope the reader, even if he does not read anything else, will read the following, for it means millions of tons of honey as against thousands of tons without this erstwhile despised weed now recognized as one of the greatest food plants ever grown.—Ed.]

Mr. Root:—Your letter of Feb. 5, asking



Fig. 6.—The Sioux City field meet—the best part of the program.

me to furnish you with an article for publication in *GLEANINGS*, telling something of the amount of sweet clover in this locality, is at hand.

As you well know, I began beekeeping in 1869 at Arcadia, Wis., and wrote you many articles for publication in the years that followed. In 1900 I moved to this state and settled at Vermilion, and at once began beekeeping, but found a scarcity of bee forage—few flowers, bees barely making a living.

I became acquainted with a Mr. Thomas Chantry, of Meckling, S. D., who had raised good crops of honey. He told me he had sown white sweet clover along the roadsides thruout his vicinity, and that it was a great honey-yielder; and that if I would gather some seed and sow it at Vermilion I could soon get a big honey crop.

I did so, and thoroly seeded the railroad right of way and all roadsides for two miles around, and waste places along the Missouri River bottoms which pass here. It grew to an amazing height, and the second year I began to reap a benefit.

The farmers at once became alarmed, and feared it would get into their fields, and wondered what it was and where it came from. They held a meeting and agreed to



Fig. 7.—The field meet on the lawn of E. G. Brown; Prof. F. E. Millen, of the Ames Agricultural College, Iowa, speaking.

cut it and kill it out. All were united, and they did cut it. Many cut it too early, so that it came up again and gave me a good yield of honey. A petition was sent to the legislature asking for a law making it a nuisance, and a noxious weed classed with burdock and snapdragon, and got it passed. A fine of \$5.00 was imposed on any man allowing it to grow on roadsides adjoining his land. They fought it hard, and I was obliged to keep silence and see acres of clover in full bloom cut down just when my bees were storing immense quantities of honey from it.

Had it been known who sowed it a mob would have started after me. Still, I gathered the seed and always had my pockets full, scattering it wherever I went, even going out dark nights to sow it. The richness of the soil and the vitality of the plant made it impossible to exterminate it.

In 1910, I think it was, our State Agricultural Station at Brookings, S. D., discovered that sweet clover is a wonderful builder of soil. Sown on poor clay land which would not grow grass in three years it grew heavy crops of wheat. Then it was discovered that stock would eat it. Word went round the farmers' institutes, and on Jan. 3, 1912, one professor gave a lecture here, saying sweet clover was the best friend the farmer had. Several farmers said if he had made that statement five years sooner they would have taken him out and hung him.

Today farmers are all sowing big fields of it, feeding it, filling silos with it, and are as anxious to raise it as they were at first to destroy it. Our honey yields have increased from a few pounds of surplus per colony to

300 lbs., or near it, every year. It is the mammoth white variety we have here, often growing six and eight feet tall; and, if not crowded, will throw out branches like a tree. It begins blossoming July 1, and continues in blossom three months. If cut in June, before it blossoms, it stools out and blossoms till Oct. 25, or until frozen. It yields honey as soon as it comes in blossom, and continues to yield, let the weather be wet or dry, all seasons. One can see ripe seed and fresh blossoms on the same stalk until hard freezing weather comes on.

We have also the yellow variety which blossoms May 15, 1½ months ahead of the white, and is a great help in putting bees in shape for the big surplus. This variety, however, is a smaller clover, and there is not so much of it grown.

We have fruit-bloom, dandelions, and a little white clover—not much. These do not give a surplus. Then we have a species of mint that gives a surplus right along with sweet clover for about three weeks. There is never any dark honey in Dakota. All our honey is snow-white and of exquisite flavor. The most of the honey is from white sweet clover. One farmer less than a mile from me sowed 400 acres of white sweet clover one year ago, and is going to raise a seed crop this year, so I am making calculations for a big surplus this season. Last season many farmers made big money raising and selling the seed. One field of 40 acres I visited when in blossom stood evenly six feet tall, and so thick that a rabbit could not get into it to hide.

DR. E. A. MORGAN.

Vermilion, S. D., Feb. 20.



TO produce a maximum crop of honey in 1918 it is necessary to commence getting the colonies in condition this summer. The beginning must be made just after the honey crop has been taken; or, if one raises his own queens, even earlier, say during the honey-flow, as the best queens can be bred at this time and with the least labor and expense, the queens being mated and laying at the time the honey is taken off.

At this time of the season the hives may be four, five, or six stories high with the queen confined to the lower story by

THE MAXIMUM CROP OF HONEY

*Can Best be Secured if Preparations
are Begun the Season Before, and
all Colonies Given Young Queens*

By Harold Horner

that will keep an eight-frame body full of eggs and brood (I use eight-frame bodies only) after the main flow is well on, provided these queens have been doing what they should before that time.

After the supers have been taken off, the old queen should be hunted up and killed. This should be done in the morning and a young laying queen introduced just before dark, when the bees will be in the best mood to accept her. The new queen must

means of a queen-excluder. Some say one story is not enough for a queen; but I have not been able to find many queens

be a young laying one. Everything depends on this; for if a virgin or a queen-cell is given the chances are nine to one that when the queen goes out to mate the bees will swarm out with her. It is a great mistake to look in the hive under five or six days to see if the queen has been accepted, for, being young, she is easily excited and then the bees kill her.

THE REASON FOR EARLY REQUEENING.

At the latter end of (or just after) a heavy honey-flow, old queens take a rest and almost cease laying for five or six weeks until there is a fairly good flow of honey coming on from some of the later summer flowers — in this locality from heartsease, as it is the first to yield any amount of nectar. A young queen, if introduced, goes to laying at once, and in a week the bees are hustling off to get something to take care of the young brood.

have to be replaced as in case of queens received by mail. Usually about 40 per cent of the queens received from other breeders are unprolific. I do not believe this is always due to carelessness of the queen-breeder but to injury of the queens shipped after they have commenced laying when they are heavy with eggs.

After determining the prolificness of all queens introduced, there is nothing further to do until the fall flowers, such as asters and goldenrod, commence yielding nectar. After this flow has been on two or three weeks every colony should be looked over to see that the queens are all right and that there are plenty of bees. Colonies not having enough bees to cover six to eight combs, and with plenty of hatching brood, should be united with other weak colonies. The queen should be laying in the upper story, there being two stories



One of Harold Horner's apiaries at the close of the honey-flow.

They will generally find it, too, even if no flowers appear to be blooming or yielding nectar.

At the time the old queen is taken away the combs should be looked over carefully and all that have drone-cells removed, good worker combs being put in their places. Another story of worker combs should also be put on with the queen-excluder above it, as it will take two stories to hold the young queen. Good combs for this purpose may easily be selected from combs recently extracted.

Two to three weeks after the young queens are introduced the colonies should be looked over carefully, and any queens not laying should be killed and good ones introduced. If the queens have been reared right at home, not nearly as many will

left for winter. All surplus bodies and the queen-excluder should be removed, likewise any ventilating-blocks for extra ventilation at the entrance. The propolis should be scraped off the edges of the hive-bodies, floors, and covers, so they will fit closely and leave no opening for drafts of air across the frames.

PREPARATIONS FOR WINTER.

At this time it should be possible to tell how much honey the hive contains for winter. Each colony should have not less than seven or eight combs weighing full five pounds each, and it does no harm if there are more than this. The mistake should not be made of looking over the bees too late and then filling the top story with combs full of honey sealed clear to the bottom-bars. The bees need time to

arrange the brood-nest to their liking, and they will not do so well on combs entirely filled and capped over.

As soon as the bees have been found to have plenty of honey the covers are not disturbed again, but are left to be sealed down. Colonies so arranged are in good condition for winter; and with a good prolific queen, plenty of young bees, and more than enough honey, everything is ready for a maximum crop of honey in 1918 provided there is nectar in the flowers.

During the winter the bees go to the upper story where most of the honey should be, and where it is much warmer than in the lower story with its entrance. The cold winds do not blow directly on the bees as in one-story hives. Furthermore, the weather has to be pretty warm for the bees to come out of two-story hives, as they cluster some distance away from the direct sunshine. In single-story hives the sun draws them out while the air away from the hive is so chilly that many fall and never return, thus weakening the colony. I have never used any extra winter protection as yet, but expect to try some sort of winter case in addition to the two stories.

About the last of October or first of November it is well to go over all the hives and reduce the entrances to three inches by one-quarter inch, using a strip nailed over the opening. I use floors made of $\frac{7}{8}$ -inch lumber with a space under the hives of $\frac{7}{8}$ inch also.

EARLY SPRING WORK.

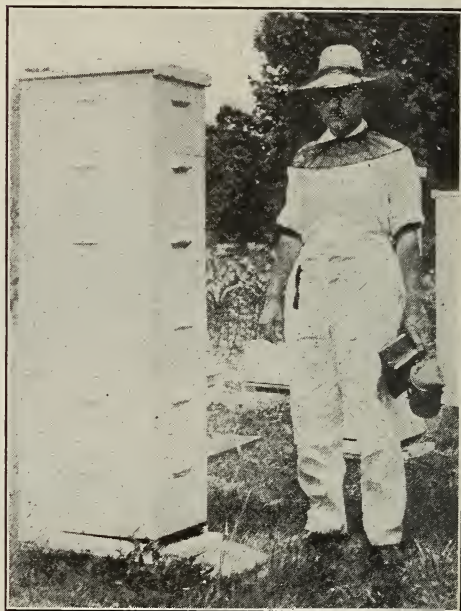
In the spring, as soon as the weather is warm enough to open the hives, which is usually March 1 to 15 in this locality, it is necessary to go thru the colonies to see if any are queenless. If any are weak it is better to unite them at once, for it does not pay to try to pull a weak colony thru. It is far better to unite, even if a division later on is necessary. At this time, if the winter has not been too severe, three to four combs will be found nearly full of brood with perhaps a little in the middle of two others. If the colony is very strong, and there is plenty of brood, it is well to put a drawn comb, or, better still, one with a pound or so of honey, in the middle of the brood-nest. However, it is never safe to try to spread the brood too much.

In this locality we have plenty of pollen and some honey from soft maple as early as March 10. This starts the bees to breeding very rapidly, especially if they have abundant stores in the hive to keep them going, as there are days when it is too cold and windy for the bees to venture

out. Moreover, the maples are quite apt to get frozen when they blossom so early. Of course, there are others later, as they do not all blossom at once.

About the first of April all hives should be examined; and if the upper story is well filled with brood the two brood-chambers should be reversed, the empty ones below put on top, and those with the brood below. The queen can be hurried along with her laying if two combs of unsealed brood are put in the upper story.

Some might ask why it would not be a good plan to let the bees themselves work down into the lower story. This could be done with much less labor; but heat always goes to the top, so if the empty combs are placed there and the sealed brood below it



The supers are often stacked up six high.

makes it more comfortable for the queen and young larvæ above, and the queen will start laying at once in the upper story, especially if unsealed brood is placed there.

By April 15 to 25, the fruit-blossoms are out and the bees do a land-office business, provided the weather is not so cold and stormy that they cannot fly. This is the time that plenty of stores left over from the fall before come in handy, for the queen does not have to stop her laying because no honey is coming in.

About three weeks after the two brood-chambers have been reversed they should be examined again; and if the queen is not using both stories the empty one should

be put on top as before. There is little more to be done now except to see that the queens are using both stories, or, in some instances, if two are filled a third one besides. Two to three stories should be boiling over with bees ready for clover.

THE HONEY-FLOW.

After white clover has been yielding for a week or ten days (white clover commences about May 10 or 20 in this locality according to the season), after having put on extra supers as necessary the queen should be confined to the lower story. In this lower brood-chamber eight combs are selected from the two or three brood-chambers that are the heaviest with pollen and also that contain the most eggs or the youngest brood. On top of these the queen-excluder should be placed, then a body of drawn comb or full sheets of comb foundation (it is a waste of good time and honey to use less than full sheets of foundation), and finally the body or bodies of the more advanced brood and the honey. All stories above the excluders should have but seven frames and these should be equally spaced.

At this time the empty cells left when the young bees hatched out will be filled at once with honey, and there is always a scramble to get all the combs filled between the two lots of brood. Some might ask about these combs that have brood in, whether they will not be in the way or whether such old combs will not make the honey dark. There is no need to worry, for the bees will all be hatched and out of the way long before the honey is ready to take off. Honey stored in these old black combs is ripened at once, and there is always more of it. I have had two supers of these old combs filled while the bees were filling one super of newly drawn combs. As to the color, I have not been able to distinguish the slightest difference between honey taken from old combs and that taken from new except that the honey from the old combs is invariably better flavored and thicker. Bees never put honey in cells that are dirty.

If the weather becomes warm enough to cause the slightest indication of bees hanging out on the fronts of the hives, two one-inch cubes of wood should be cut for each hive, the lower stories tipped up from the bottom-board, and the blocks placed under the front corners. This gives additional ventilation, and has a tendency to send the honey up into the supers. The hive-stands should be set with pitch enough so that, when the blocks are put under, the hives will be level.

When putting on empty supers it is advisable to remove the full supers down to

the queen-excluder and put the empty one on, then on top of it those taken off, putting the heaviest on top. The supers should not be added too fast at the end of the flow. I have always been well repaid for all of the extra heavy work of putting full supers on top. (By the way, this is one of the reasons eight-frame hives are large enough for me, as we often have them tiered up six stories high). The empty supers are nearer for the bees to put the honey in. Moreover, the bees continually traveling over the honey to upper stories, especially if left on to the end of the flow, make the cappings very tough.

My reason for using but seven frames and spacing them equally is that it takes fewer frames and the combs are much thicker, so that when uncapped if the knife goes right down to the frame the uncapping is much easier, much more wax is secured, and the combs are left in better condition. Moreover, there are fewer to handle according to the amount of honey extracted.

Why not extract the combs when full instead of tiering up the supers? The reason is that the honey is richer and heavier when left until the end of the flow. There is nothing worse than honey which is not thoroly ripened. Then I have always noticed if honey is taken away during a honey-flow and empty combs returned the bees become dissatisfied, and it often results in swarming. I rarely have any swarming. The reasons are, first, the young queens; second, the ventilation by blocks under the front ends of the hives; third, keeping the honey on until after the flow is over; fourth, requeening right after the honey-flow with strong young queens. These queens get right down to work and make every one else work too. Bees with nothing to do are like people out of work. They get into mischief, rob a great deal, so they should be kept working as much as possible. A good many of my colonies give over two hundred pounds of surplus honey each.

After the honey is extracted and the combs are empty it is a good time to select all worker combs to be added to the brood-chamber when requeening. The remaining combs can be put eight to a super and piled back on the hives above the excluder, for the bees can care for them better than the beekeeper can.

Mount Holly, N. J.

[Beekeeping is a man's business,—the business of a man who can look into the future and plan for the months to come. One who can see only 24 hours ahead cannot be a successful honey producer.—Ed.]



Sweet clover along the roadsides, alsike clover three feet high, and an unusually fine stand of crimson clover—all in Tennessee. Photographed by J. M. Buchanan.

THE CLOVERS OF TENNESSEE

How Alsike Clover is Replacing the Red for Hay and Pasturage

By J. M. Buchanan

ALTHO Tennessee has a wide range of honey-producing flora, it is safe to say that the great majority of our marketable honey comes from the clovers, principally white and alsike. On account of its wider distribution, white clover is, perhaps, the most important member of the clover family, from the standpoint of honey production, altho alsike is a close second.

Dr. Phillips, in his late book on practical beekeeping, places the southern limit of the "white-clover belt" at the Ohio River. It is very likely that at the time that was written the doctor had not been thru the famous bluegrass region of Kentucky and Tennessee in clover-blossom time. Wherever bluegrass grows, white clover is found in its highest perfection. Thruout the central and eastern sections of the state with the exception of the mountains and sandstone ridges, white clover grows spontaneously, and furnishes a large quantity of nectar from May 1 to July 1, and sometimes later. The honey from this is generally equal to that produced in the northern states.

For the past ten years alsike clover has been planted by the farmers in ever increasing quantities, for hay and pasturage. While the hay crop is not quite so large as from red clover, the quality is better, and it seems to afford more pasturage. One great advantage alsike has over red clover is the certainty of getting a stand when sown. Perhaps on account of a lack of lime in the soil it has been difficult to get a good stand of red clover. While alsike will grow with less lime than red clover, still it responds favorably to a lime treatment, which seems to increase the growth and also the nectar secretion. On good soil, well limed, I have seen alsike two or three feet high, while many individual stalks would measure over four feet in length.

As compared to white clover in nectar secretion, I would say that an acre of alsike is worth two or three of white clover, even at its best, while the quality of the honey is so much alike that it would require an expert to distinguish the difference. The period of bloom is also much longer than that of white clover, lasting, where pastured, practically all summer. Then when cut for hay the second crop furnishes a good bloom if the season is not unusually dry.

Occasionally we get a crop of honey from red clover; however, this is generally from the second crop, and in dry seasons, when

the corolla tubes are not too deep for the bees to reach the nectar.

Crimson clover has been planted extensively as a cover crop and

winter pasture for the last few seasons, and is becoming more popular each year. This grows luxuriantly, and furnishes quite a quantity of nectar early in the season, which makes it valuable as a help in building up the colonies in the spring. So far as I have been able to judge, the honey from crimson, unlike that from other members of the clover family, is rather dark in color. However, this may in part be due to an admixture of nectar from other sources, as the period of bloom occurs along with that of fruit-trees and wild flowers.

Along the roadsides in many parts of the state white sweet clover (*Melilotus alba*) is found growing wild, altho as yet this plant has not been extensively cultivated here. This blooms during the late summer, at a time when there is generally a dearth of honey flora. The flavor of sweet-clover honey is so strong that it is not very popular on our markets, many people seeming to think it artificial.

Alfalfa is grown extensively in some sections of Tennessee, but it seems to secrete very little nectar. This is also true of Japan clover, or lespedeza, which is the principal hay crop of the western part of the state.

The young plants of both white and alsike clover made a good growth last fall; and, altho the winter was more than usually severe, the ground was covered with snow during the coldest weather.

Franklin, Tenn.

[The fact that alsike clover is replacing the red in so many localities means much to the beekeepers of America. Think how many locations for bees would be literally transformed if the red clover which is in reach of the bees, were replaced by alsike. Here is good advice: "Do your bit. Help prevent a sugar shortage by planting alsike instead of red clover and secure a better and surer crop besides." Some suggestions made to farmers, these days, are not very practical, from the farmer's own standpoint, but here is one that is worth while. As beekeepers, let us take advantage of a steady movement in the right direction and convincingly preach the gospel of the sowing of alsike by offering to pay a part of the cost of the seed. It is worth while to the farmer and to the beekeeper as well.—ED.]

SIX months ago we began an experiment to determine whether queens can be mated under cover and mating controlled.

We chose to carry this experiment on before the entire audience of our readers, that they might follow it step by step, judge the whole procedure, and suggest if they would.

We undertook this experiment, sparing neither pains nor cost, because of the possibilities for the betterment of beekeeping that we felt might attend success in bringing about control of mating under cover. With such success would come line breeding and all the improvement that must follow the systematic retention of best-quality strains of bees and the elimination of the poor-quality strains. It would end haphazard bee breeding and start the pedigreed bee.

We have failed to accomplish mating under cover in this first experiment and under what we believe to have been the most favorable conditions that have ever surrounded this experiment—at least so far as the enclosure was concerned. We have not predicted success in accomplishing mating under cover at any time during the experiment, altho we had hoped most earnestly for it. We have simply done the best we could in trying to accomplish a great possibility for beekeeping; and we have no excuses to offer, altho we made mistakes that we could avoid another time. For instance, we thought that we could get out-of-season drones reared in the big greenhouse some time in February by building up the original experimental colony to a drone-producing condition, but couldn't. So we were delayed until we could get nuclei containing sealed drone brood from the South, and a cold spring prevented Southern breeders from furnishing us this brood till very late. Again, it proved a mistake to try to use queen-cells started in queenless colonies enroute from the South, for the queens so secured proved a sorry lot. Finally, in the first mating test (by unfortunate events for which we and the weatherman were alike responsible) we had few and poor queens altho many drones; and in the second test (told of below), we had enough good queens but only a few drones.

But—we do not seek to prove an "alibi," as the saying is nowadays. We wholly failed to secure the mating that we so much desired, and now proceed to the last brief chapter that tells of the conclusion of this

WE HAVE NOT DONE IT

Final Chapter in Mating Experiment—May be Another Answer to "Can this be Done?"

By the Editors

lot of queens mated—at least, none of them began laying, altho there were plenty of drones—strong, vigorous fellows flying in the greenhouse at the time these first queens were flying. Before we could get another lot of queens ready most of these first drones had disappeared. Four twin nuclei, each with a virgin queen, and plenty of young vigorous drones, were taken the last of May to the building. These four virgins, together with five others in other nuclei, were watched very carefully. These queens were not defective in any way so far as we could see; but within ten days four of them had disappeared entirely, and of the other five not one was laying. It is true that the conditions were not quite as favorable as at the first test, so far as the sources of nectar and the drones were concerned, for the first cucumber-vines had practically stopped blossoming, and the young vines planted later were just beginning to blossom. While there were good strong drones flying, there were not nearly as many of them as during the first test, when we thought the queens were defective.

The glass shutters in the roof of the building are now open a large part of each day, hence further experimenting this year is out of the question; for even if queens were mated we would not be able to tell whether they mated inside the building or out.

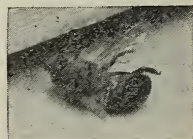
As a final word now, we give it as our opinion that, while this experiment is not absolutely conclusive, yet we feel that if mating under cover is ever accomplished the percentage of mating may be so low that the success will be interesting more from a scientific than from a practical standpoint. In other words, while the queens and drones may fly naturally in a great enclosure like the big greenhouse in which this experiment was tried, yet conditions nevertheless are not normal, as they are out of doors, and any possible successful matings will doubtless be limited. Yet, having said this, we

are not yet quite prepared to add that "This can't be done."

We may try the experiment again—in deed, we are very likely to try it again.

experiment—which we are glad we have made.

As reported in the last number we did not succeed in getting any of the first



HE failed us.



Conversations with Doolittle

REGULAR COMBS FOR FORMING NUCLEI.

"I wish to rear some queens for use in my apiary, as I think I have a good breeding queen. Had I better adopt the little nucleus hives queen-breeders use or use the regular-sized combs of my brood-chambers? How shall I form nuclei if I use my brood-combs for that purpose?"

From my standpoint, the best size of frame for the practical beekeeper to use in queen-rearing is the one used in producing honey. This is especially applicable to the one who has been a beekeeper only a short time. For a few seasons, soon after I began beekeeping, I tried raising queens in small hives holding four frames about eight inches square. The failures I met by using these small hives and frames were so numerous that I became disgusted and almost discouraged; but as I was hoping to overcome all difficulties, I kept at it until I learned a better way—using full-sized frames. The bees work more to our profit when the regular-sized frame is used; for if any comb is built by the nuclei it is in just the frames we want it, and always of the size of cells we wish, as these small colonies build only worker comb.

After deciding on full-sized frames I reared quite a few queens the next season for my own use; and I so much enjoyed the bees' work in building new combs and patching up old ones that I could scarcely go into the apiary without taking a peep into some of the nuclei. Where I have combs in which the mice have gnawed holes, or the bees have made holes by cutting out moldy pollen, or combs from which I have cut out little patches of drone comb I always give them to these nuclei when forming them; and as soon as the young queen commences to lay, the bees will commence to build comb and repair these places if honey is coming in from the fields, or if they are fed when no honey is to be obtained. By leaving the young queen with them the length of time required, we have our combs all made over new, nearly or quite as good as those built out on foundation, thus saving the cost of foundation and the work of putting it in the frames. (At times when no queen-rearing is going on such combs can be given to any colony in which a young queen has just commenced to lay; and if her colony is not too strong, and if there is no excessive

flow of nectar on at the time, such combs will be repaired in good shape.)

TO PREVENT ROBBING.

With nuclei on small frames and in small hives there is often trouble from robbing; but by using the regular-sized hive, and placing the nucleus on one side of it, with a follower next to the two, three, or four combs used, while the entrance is at the other side, no nucleus large enough to hold a queen to advantage will ever be robbed out. In other words, suppose that the entrance used is the full width of the hive, and that the hive fronts south. Form the nucleus on the east side of the hive, using two combs, one of honey and one of brood. Put the comb of honey next the side of the hive, and the one of brood next, so the comb of honey will be beyond the brood, on which the bees will mostly cluster. Next to these combs put the follower, division-board, or dummy, which should lack, say, five-sixteenths inch of reaching the floor. Now close up all the entrance except one inch in length at the west side of the hive. I have not had a single nucleus robbed out since I discovered this plan forty years ago.

I use this way to prevent robbing of weak colonies in early spring, when robbers are more persistent than at any other time of year. In order to get at the honey, when fixed in this way, the robber has first to pass thru a small entrance into an empty space where it is liable to be seized by one or more sentinels, then travel in the dark thru danger till the follower is reached, underneath which it must go thru scores of sentinels. Should the robber arrive there, no honey will be found, but, instead, the colony, strongly protected and garrisoned by all the warriors, while the treasure the robber covets is still beyond.

Suppose I wish a nucleus in the next hive of the same row as the one described above. In this hive I place the two frames and dummy next the west side of the hive while the entrance is on the east side. The next hive is just the opposite, and the next like the second, and so on in alternation to the end. In this way the young bees do not mix; and in returning from their wedding-flights no queens are lost by entering the wrong hive.

TO MAKE THE BEES STAY.

To form a nucleus from a colony in the home apiary and have the bees stay where



FROM THE FIELD OF EXPERIENCE



you want them, take from any colony which can spare the bees, between sunset and dark, one frame of honey with bees adhering, one frame of as nearly maturing brood as possible with the adhering bees and also the queen, fixing them in a hive as has been described. Leave them thus for four days; then take out the queen, drop her in a spoon of honey, and roll her around till she is smeared. Any new honey which is a little thin will answer. If the honey is thick and old, I thin it with warm water till it is about like new unsealed honey. A broom splint is good for the rolling purpose. Remove the top of the hive from which she was taken four days before and put in two combs to take the place of those used in forming the nucleus, then turn out the honey and queen with it, so she and the honey will run down between two combs. Two days later give the nucleus a ripe queen-cell, and in ten to thirteen days you will have a laying queen in the nucleus, as a rule, when they will be ready to build comb of the worker size of cells if fed, or if a good supply of nectar is coming in from the fields. By taking the *laying* queen with her bees in forming the nucleus, the bees will mostly adhere to the queen if the work is done at nightfall, and will not go back when she is taken away four days later.

Borodino, N. Y. G. M. DOOLITTLE.



Letters from a Beekeeper's Wife

The Bee Hive, July 1, '17.

Dear Sis:

We hardly have time to breathe these busy days. Rob is up every morning at four o'clock and so am I, and we work until dark. You know we started our new yard by taking twenty-five of the colonies from our home apiary. We have increased now to a hundred colonies, each with a fine, new Italian queen, and altho they were small at first they are building up rapidly. Before the end of the season we hope to have them as strong as our best. Of course we expect no honey when making such increase—which is the difference between modern beekeeping and the old way of letting the bees swarm ad libitum.

Some days Rob goes off at daybreak with our old auto on which he has built a funny-looking truck, piled high with supers. I pack him a substantial lunch for he usually stays in the Randolph yard all day, and at the others not quite so long, looking over

the colonies to locate those that are preparing to swarm and to nip that tendency in the bud. Our neighboring beekeepers think he is a crank on this, but we know that it pays. Then too he has extra supers to put on where they are needed. It is back-breaking business, lifting supers all day and bending over hives, but he loves it, and is elated when he comes in at four or five o'clock, hot, hungry, and so sticky and mussed up, but with a truck load of supers filled with beautiful white-clover honey.

Getting up at such an early hour—I can't picture you doing such a thing—gives me time to do all of my own work and look out for swarms in the home yard, and yet have time to lie down for an hour or two in the afternoon. We have dinner ready at five when Rob gets home and the girls wash the dishes while Rob and I go out to the honey-house to extract. We should not be extracting at night when the honey is cool, but starting a new yard has cut down our supply of combs, and right on top of that came a good season. So we have to extract almost every night after Rob comes home to get combs for the next day. I never saw anything like the bee business! There is always something out of joint in our plans, but I know one thing—next year we will not be short of combs. After Rob has his business built up we can adjust ourselves better, and then extracting will come after the rush of the honey-flow.

Out in the honey-house that little gas-engine chug-chugs and turns the fan as well as the extractor, so it is not as hot as it might be, but it is quite warm enough! We both uncap as fast as possible, and Rob puts the frames in and out of the extractor. It is fearfully hard work for him after a heavy day in the apiaries, but I enjoy it. I like the honey smell even tho it is mixed with the odor from the engine, and I like the way the wax falls away from the knife. I can't say that I enjoy the stickiness! I'm not proud but am so stuck up! Clothes, hair, face, hands, even shoes acquire honey, tho I have a special costume, a big oilcloth apron with sleeves that covers me entirely.

We finish the day's work by eight o'clock and go to bed, leaving the children to look after themselves. Billy misses his usual game of checkers with Daddy, and I miss talking over the day with the children, but this rush doesn't last long—that's one comfort.

From the amount of honey we are getting



FROM THE FIELD OF EXPERIENCE



every day, you would think our bees were gathering up all the nectar in the world, when really it is not a drop in the bucket compared with the amount of nectar there is provided. Nature is surely a lavish housekeeper! She spreads out tons and tons of nectar in her flowers for bees and butterflies and all the other hundreds of insects that feed upon it, and the greater part remains untouched. Rob says one colony of bees alone consumes nearly five hundred pounds of honey a year, and a good colony will give us over and above that in a good season, about a hundred pounds. We get the little end. Just think how much sugar our three hundred colonies—four hundred with our new yard—are picking up from our doorstep, and there must be an enormous quantity left in our fields and meadows in the bottoms of flower-cups.

I ought to be sleeping this minute instead of figuring the amount of sugar at hand which we can't have unless the bees will collect it for us, if I am to be ready for Rob and the gas-engine at half-past five. We seem to be getting a very good crop this year if it holds on as it has begun. The worst will be over when I write you next. When are you and the boys coming out? Shall we look for you next month?

Yours immersed in nectar,

Mary.



How I Permanently Cured European Foul Brood

In the spring of 1914 I bought an apiary of 177 colonies at Reno, Nevada. It was too cold to examine them; but I learned that they had contracted European foul brood and that the whole state was also infected. I was told that it could not be cured permanently—that some experienced beekeepers were already out of business, and others were working their bees to the limit, foreseeing the time they also would be obliged to quit. I had not seen European foul brood, and no one gave me much encouragement in regard to its cure.

However, I remembered the disease raging in New York ten or twelve years ago. So I searched for every available article, written by men of that state. I tried many of the different treatments, but only one appealed to me—that given by Mr. S. D. House, page 330, June 1, 1911. Right here I will say that, if any one will follow Mr. House to the letter, he will cure European

foul brood. Dr. Miller's cage treatment doesn't work here, for these bees are entirely black, while his are hybrids. G. H. Rea can come to Nevada and shake the life out of the bees, but they will still be diseased if he doesn't change the stock.

Some good authorities claim there is no resistant stock; but I believe there is, but such strains are few. I tried ten of the best breeders in the United States and saw other beekeepers try as many more; and out of all, I found only two strains that were immune. These I have shaken into hives in which diseased bees had died, yet not a bad cell developed.

Altho some strains of Italians are susceptible to the disease, still the real home of European foul brood is with the black bee itself. Why? Probably because the black race has run wild, inbred, and degenerated, while man has taken charge of the beautiful Italians and has bred them to the highest standards. May 1, 1914, I examined my bees and found 151 colonies were alive and 85 in healthy condition. Of these latter, 35 swarmed during dandelion bloom. June 1 I found all of my colonies were diseased—even the new swarms. In some hives I detected only a few cells; in others all was diseased, or, in plain talk, rotten. When the main honey-flow came, June 12, there were 135 colonies still alive.

MY TREATMENT.

I had already ordered a pure Italian queen for each colony, the queens to arrive at different dates from May until July 1. I started on the worst colonies first, and here is the secret that I discovered: If the swarm is of average size, simply remove all brood, shaking the bees and queen back into the hive; and if the combs remaining in the hive are full of diseased honey, this fact need cause no worry. Refill the empty space with frames containing starters or full sheets. I will guarantee that colony will show no disease in the first brood, a little in the second, and a great deal in the third. I have yet to see the disease showing in the first brood unless the queen is failing. Now comes the next secret. Get that pure Italian queen introduced and laying immediately, or within the twenty-one days when the first brood would develop. I have had as much as twenty-five per cent of diseased brood before the Italian bees began on the job, and it all disappeared in from thirty to sixty days after they took full charge.

If a colony is weak, and also twenty-five

FROM THE FIELD OF EXPERIENCE

to one hundred per cent diseased, I follow the above method—only, instead of sheets of foundation, I give them all the healthy brood they can cover. If the colony is fairly strong, and only ten to fifteen per cent diseased, I do not bother to remove the brood, but just introduce my new queen as soon as possible.

My treatment sounds almost too simple to be practicable, but it has been successful in my apiary.

I find that, where European foul brood exists, one should not attempt to raise queens in a yard of black bees, for hybrid stock does not resist this disease. In the spring of 1915 I had forty diseased colonies, and in every case the bees were hybrids. Either an Italian queen had mated to a black drone or else the Italian queen that I introduced had been killed and a hybrid raised. In 1916 I had two cases out of 350 colonies, and both were blacks that stole a march on me and raised a queen of their own.

The disease is on every side of me and raging thruout the state. Yet, in spite of this fact, my yards are free from it, so I think I have whipped it completely. I have no love for either form of foul brood; but my preference is for the American style of the disease, as its elimination is easier and quicker, and not nearly as expensive.

Reno, Nevada.

M. W. HARVEY.

European Foul Brood and Queen-cells with Dead Tenants

On page 45 of the January number Dr. Miller, referring to what I say on page 1077, to the effect that, so far as lies in our power, we should not let worker-bees have a chance to clean out larvæ diseased with European foul brood, makes this comment: "I risk the guess that, after our tall friend has had a little longer acquaintance with the disease, he'll change his mind."

Look here, Dr. Miller, when you get to a ripe old age you will appreciate the fact that a man often knows a great deal less in his younger days than he then realizes. Years ago, I remember, a bacteriologist said that if microbes were as large as turkeys, and could be as readily detected with the eye, one could understand by what means and to what extent the microbes were transported. We can forgive the average beekeeper for not being able to understand the principles of bacteriology, but I am not

going to forgive you if you fail. You have a scientific education; and you know that, when the bees undertake to clean out this dead brood, they must infect their own bodies, other parts of the hive thru which the dead brood is dragged, and quite likely other bees with which they come in contact. Nor is that all. After the dead brood has been dragged outside of the hive there is the danger that the infection may blow into other hives and carry the disease there.

These are the reasons that I prefer to cut out the diseased comb. It is an old saying, that "familiarity breeds contempt." But the wholesome respect that I have for European foul brood will more than balance the expected familiarity.

Altho I do not know that the beekeepers of New York are in the right, still let me tell you in confidence, Dr. Miller, that recently during a somewhat extended tour of their state, which has had such a serious outbreak of this disease, I found that many of the recognized authorities believe that your bees must have had a very mild form of the disease, and that, in many cases, your treatment would not prove a success.

QUEEN-CELLS WITH DEAD TENANTS.

On the same page (45) is a discussion of the value of a queen-cell with a dead tenant; and it appears that some think the bees can be fooled into believing that the cell contains a living rival. Well, what shall I say? You can fool the beekeeper with that kind of thing much more readily than the bees. Who of any extensive experience has not found queen-cells with dead tenants in places where the bees would not have tolerated a living one? R. F. HOLTERMANN.

Brantford, Ont., Can.

Bees Fly Fourteen Miles for Honey?

On page 374, May GLEANINGS, answering the third question of C. G., Illinois, Mr. E. R. Root says, "Bees have been known to fly even ten miles across a body of water for nectar; but they will not go that far over land."

I have seen the question as to the distance bees will fly in a search for honey broached several times in recent issues of GLEANINGS. I should consider the discussion of the greatest distance academic rather than practical; but still it is a question of interest to beekeepers. It would be of practical value to know how far bees could profitably fly for honey.

FROM THE FIELD OF EXPERIENCE

I believe I was the first to introduce Italian bees into Texas. I imported two queens thru Rev. H. A. King, then of New York city. It was in 1871. Some years later, and, to my almost certain knowledge, before there were any Italian bees in Travis County, I found my Italian bees, a number of them, working on sumac about fourteen miles from my apiary. My small establishment was then two and a half miles east of the capital at Austin. I was eleven or twelve miles west of the capital, across the river and in the mountains at the time. The character of the country east of Austin is totally different from that west. The geological formation is different. A great geological fault exists between the place I occupied and the capital. On my side of the fault all vegetation was dry and parched. In the mountains conditions were much better. The bees had discovered the fact and were taking advantage of it.

Huntsville, Tex.

E. P. STILES.



A Visit to Charles E. Stewart, of Johnstown, N. Y.

My first meeting with the New York beekeepers and my first visit to their state was at the state convention held at Rochester, in 1882 or 1883. There I met for the first time, L. C. Root, P. H. Elwood, G. M. Doolittle, Mr. N. Betsinger, and other prominent beekeepers. That meeting impressed me as being made up of strong men, of men who knew what they were talking about. Since then it has been my good fortune to attend many such conventions in New York, either as a private individual or as one engaged by the State Department of Agriculture, and I do not hesitate to say that I owe a good deal of apicultural information to the New York State beekeepers.

It is quite well known that the policy of the State Department of Agriculture has been to appoint for inspectors four beekeepers of good standing and of undoubted practical experience. Their practical experience and the information acquired from year to year during their rounds of inspection has made them very valuable men indeed. This fact has often been called to my attention. To illustrate, I may mention that, in speaking of the long experience of these inspectors, Dr. G. F. White said, "So far as I know, these four men have never diagnosed a case of bee disease wrongly." I was also told that not only had they nam-

ed each case correctly but that, again and again, in consultation and separately, they had determined, before the disease struck a given section of the country, just what inroads would be made on certain apiaries. These decisions were based upon the strain of bees and the skill of the owner. Such men as these may, then, be considered among the best authorities in the world; and having been entertained by one of them, Chas. E. Stewart, a 500-colony beekeeper, I shall endeavor to give some of his ideas on *European foul brood* and also on *fall feeding*.

PREVENTION OF EUROPEAN FOUL BROOD.

Mr. Stewart told me of one of his neighbors who was right in the midst of a section where European foul brood abounded, and still had never been obliged to treat a colony for this disease, altho he did have a few mild cases that were cleaned up by the bees themselves. And yet it seems that this apiary was very poorly managed, that it had twice changed hands, that some of the combs in use were over twenty years old, and that the owner succeeded in producing only one pound of comb honey to three pounds produced by Mr. Stewart in an apiary but one mile distant. Time and again the inspector had gone there expecting to find his services needed, but his expectation was never realized. However, altho this man was not an extra good beekeeper, still his exemption can probably be explained by the fact that he chanced to have a predilection for buying queens wherever he thought there was a good strain.

ITALIAN QUEENS FOR AMERICAN FOUL BROOD.

Notwithstanding Italian queens are such a factor in preventing European foul brood, Mr. Stewart thinks that it would be folly to depend upon them to get rid of American foul brood. Still they might clean up the disease in its first stages, as they have been known to remove the affected larvæ before it reached the gluey stage when it fastens to the side and bottom of the cell.

IMMUNITY.

He believes that the extent to which the disease will affect a certain colony depends upon, first, its vitality as indicated by its ability to winter under strenuous conditions; second, its house-cleaning propensities, including the cleaning-out of the diseased larvæ.

SPREAD OF EUROPEAN FOUL BROOD.

In speaking of what causes the spread of the disease, he said that he frequently

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finds that, if one colony has the disease badly, the one next to it will be diseased, tho to a smaller extent, and the one next to that will show still less trace of it, until finally colonies are reached that are in a perfectly healthy condition. Apparently this proves that the disease is often spread by the bees of one colony entering the hives next to them. On this point all four of the inspectors seem agreed. Mr. Stewart then told that Geo. W. Haines had some golden Italians that were badly diseased; and during inspection of that vicinity, an apiary of black bees was found four miles distant. These had traces of the disease in nearly every colony; and among these black bees were found some golden Italians that must surely have been Mr. Haines', for there were no other golden Italians in that part of the country. Therefore they must have left Mr. Haines' apiary and made their home in an apiary four miles away.

RESULTS OF THE DISEASE.

Looking back over the last eighteen years of experience with European foul brood—the first two years of which were spent in treating his own apiaries and those of his neighbors—Mr. Stewart says that this disease has brought about much work for the inspectors, but also certain benefits to the beekeepers, as the elimination of the box hives and the weeding-out of the careless and indifferent beekeepers. Also, by the necessary renewal of combs and the introduction of Italian blood, the disease has transformed good beekeepers into still better ones, and has thus increased the yield and quality of honey production.

BUYING BEES IN LOCALITIES HAVING EUROPEAN FOUL BROOD.

In giving a parting word of advice concerning European foul brood, Mr. Stewart said, "Beekeepers should not buy bees from localities where the disease is unknown, but, rather, from places where the disease has already existed."

FALL FEEDING.

Mr. Stewart uses ten-frame Langstroth hives, and plans to supply his bees in the fall with enough honey to last until they can be handled the following spring. Having Italian bees, and producing comb honey, it naturally results that the bees store more honey in the brood-chamber.

The latter part of September, when the bees seem inclined to stop breeding, he feeds back all the unfinished sections, and so stimulates the bees to renewed brood-rear-

ing. On all the colonies that do not have an abundance of stores he places these supers, separating them from the brood-chambers by means of an enamel cloth with a small opening thru which the bees can reach the stores above. To hasten the transfer of stores to the brood-chamber below, the cappings in some of the sections are broken. The rest of the partly filled sections are piled up in the apiary and left with a small entrance so that all the colonies may help themselves (Mr. Stewart mentioned that this sort of thing should be done only in a locality where the bees were free of disease).

In reply to a question he stated that the strong colonies do not take exclusive possession of the unfinished sections, but that even the nuclei secure enough honey to stimulate them and cause them to prosper. In an apiary of one hundred colonies, there is likely to be ten supers of unfinished sections. Since these are robbed but slowly, there never results much excitement, altho each colony is kept fairly active.

No sugar syrup is fed; and so while some buckwheat is secured, still it may happen that there are not enough unfinished sections to give them the desired amount of honey. In this case he equalizes the honey in the brood-chambers. During the autumn of 1916, Mr. Stewart's five hundred colonies were fed about two tons of honey. This was not so much to supply needed stores as to insure added strength for the coming spring.

R. F. HOLTERMANN.

Brantford, Canada.

Sprinkling the Loafers with Honey to Check the Desire to Swarm

Because of the frequent seasons when conditions are right for excessive swarming, the problem of keeping this nuisance down to a profitable working basis is one that almost constantly confronts the beekeepers of this locality.

Since 1903 I have used a simple means of checking swarms. Much, however, depends upon its application at the opportune time. It is quite possible, with certain conditions prevailing, that success may not always follow.

The honey-harvest conditions here may be roughly divided into two classes. In the first, unfortunately rare, the flow of nectar is heavy and continuous. Brood-rearing is often less than normal, and swarming is at



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its minimum. One such season occurs about once in every five or six years.

In the second type, which is by far the most frequent, the nectar flow is slow, often scanty and interrupted, and there is a consequent tendency on the part of the bees for abnormal brood-rearing. Under such circumstances the volume of emerging brood is usually in excess of its equivalent in honey-laden storage-comb already occupied by the bees. Such a state of affairs almost invariably results in swarming without regard to the surplus room that may be given. To meet this situation it is well to provide by artificial means the element lacking which is disturbing the equilibrium of the colony. The steadily increasing stream of bees must be kept spreading inside, not outside.

After having resorted to the usual means of preventing swarms, and finding that certain colonies are inclined to loaf at the entrances when others are making some show of work, I have tried the following: From the honey-house I get a small pail of thick extracted honey and a large strong kitchen spoon. Thus equipped I visit each colony that shows the least sign of loafing and allow a quantity of the honey to trickle down from the spoon over each bunch of loafers. The amount varies with the size of the cluster—a whole spoonful for a large-sized bunch. Should some of the honey fall or run on the path of the few workers that are still plying between the hive and field no harm results, as these will also become daubed and add to the general stir that soon follows.

The behavior of colonies varies under this treatment according to their individual characteristics. With some the effect is almost instantaneous. The bees at once get to work and the swarm is practically canceled with the first application. In the case of others, the loafers are stubborn and it may be necessary to repeat the treatment in a few hours, with possibly a third application before signs of swarming disappear. As a rule, colonies that are prompt to empty a feeder are more susceptible than those that show the opposite trait. Partly filled sections or pieces of combs containing honey or burr combs may be used, but they must be uncapped or put in a leaking condition to accomplish the desired result.

This manipulation should not be attempted except at the beginning or during the height of the harvest, never as the harvest is waning, nor immediately after a shower.

Beginners should not try the plan at all until they are thoroly familiar with conditions that prompt robbing. Colonies having valuable queens should be safeguarded, otherwise the queens may be lost, as colonies so treated are somewhat apt to supersede queens.

Aiken, Md.

J. FORD SEMPER.

Degenerating Apiaries

A Florida beeman, in a letter just received, says that he has sold his apiary, situated on the St. Johns River, north of here. He asserts that his reasons for selling were two—first, that the price received was good, and the hives were all getting bad!

The latter point makes me want to say something that has been in my system for a long time past. I refer to the jumble and junk condition into which many an apiary is allowed to degenerate.

Not long ago I bought two dozen colonies from a neighbor, about 40 miles away from my home yard. This beekeeper took GLEANINGS, and had a copy of A B C—in short, was supposed to be up to date.

Imagine, if you can, my surprise, my consternation, when on opening the hives I found that the frames were not all of one pattern. Some were self-spacing, some not, and in the same hive at that. Some had wide top-bars, some narrow; some combs were attached to two or even three frames at one time; some top-bars were so sagged in the middle that they allowed a two-inch space between the top-bar and frames above them. Some of the hives had flat bottoms and tops, where two stories joined; some had the old-fashioned beveled bottoms and tops; and, worst of all, some of the beveled hives were set on the flat-top hives. Can you imagine any worse mess?

I said then, and I still feel, that an equal number of box hives would be no harder proposition. It is sheer carelessness or neglect, or both, to let a yard get into such a condition. A little falling behind now, a little the next time you look over the bees, and, presto! before you are aware you have to realize that your yard is a back number.

A similar letter from another beeman states the matter thus: "I have only six colonies, but all are in old-fashioned box hives. If you will write me, advising me the best method of keeping these bees, I shall be grateful to you." Needless to say,



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I advised him to get the best lives he could, paint them well, and keep them *up to standard*. Slovenly beekeepers make slovenly hives; and slovenly hives, in a sort of reflex action, result in slovenly beemen. On the other hand, one of the best incentives to the best that is in you is always to have even the looks of things prove an inspiration to do your best. Not least of all is the decided advantage, if ever you wish to sell out a yard. It costs very little to keep things snug and modern as you go along. It becomes a herculean task to readjust, after the yard reaches a point where practically everything needs overhauling. A stitch in time saves nine.

Deland, Fla.

E. G. BALDWIN.



Swarm Prevention and Control

Continued from page 351 May number

The beekeeper's object is to prevent swarming, if possible, in order to increase the amount of surplus honey by concentrating the efforts of the bees on storing. Few beekeepers, however, understand how the problem may be solved. It is not my intention here to advise on the whole subject other than to mention some things that must be done if we would prevent swarming.

In this connection it is well to remember that the bee is intent on what it is doing, whether it be swarming, comb-building, or the gathering of pollen or honey. Therefore if we wish to prevent swarming we must give the bees an inducement to follow some other line—one that will divert them from the idea of swarming. It is just for this reason that bait sections are of so much value. They give the bees an inducement to begin operations in the sections; and with the bees intent on this work, the greatest danger of swarming is over.

While, as I have said, it is not the nature of the bee to build comb in the old hive, yet if comb-building can be induced and the colony started in this direction before the necessity for swarming arises, swarming may be controlled. However, where new comb-building is being forced in the old colony, there is always the possibility that new swarming tendencies may arise; for if there is a crowded condition in the hive, or if there is a honey-flow sufficient to induce rapid breeding, but not enough to cause rapid comb-building, then a state of unrest and inactivity will result in preparation to swarm. When this state of enforced inactivity once prevails nothing but

swarming will bring the colony back to its normal condition except, perhaps, an abundant comb room in which to store. The time to begin to control swarming is before the conditions develop that induce it. This is why we are able to control swarming when extracted honey is being produced, because it is possible to keep the colonies busy without forcing them into comb-building. When comb honey is being produced, swarming can be controlled only as we are able to overcome the swarming impulse by removing the queen-cells or using other methods that will thwart nature. Many times if we remove queen-cells the bees become so intent in rebuilding them that swarming is neglected.

While reproduction is the object of swarming, it is only after the limit of available comb room has been reached that the bees exercise that function. In this the queen at times plays an important part. The tendency to supersede old queens is ever present, and is stronger in the early spring and summer than at any other time. This is due largely to the fact that the weakness of the old queen is more apparent during the height of the breeding season than at any other time of the year. In instances where there was plenty of room I have often known a colony run for extracted honey to supersede its queen without showing any desire to swarm, even when swarming conditions seemed ideal. But oftentimes queen-cells may be started for the purpose of superseding, then other conditions arise and finally result in the casting of the swarm. This may happen even at a time before the cells are completed, in which case the parent colony probably realizes that the time of eliminating the old queen is also an opportune time to relieve the congested condition of the hive. Yet notwithstanding the old queens may cause swarming, still the swarming impulse is not necessarily relieved by the presence of a young queen; for when conditions become such that nature demands relief, swarming will take place just the same. But the bees will respond more readily to comb-building than when an old queen heads the colony, because there is no necessity for superseding. However, tho supersedure may be a factor in many cases, the primary object of queen-cells at the swarming period must be attributed to reproduction made desirable by the bees having reached the limit of available room. In case of supersedure cells, the object is self-preservation.

P. C. CHADWICK.

Redlands, Cal.

STRAY STRAWS

Dr. C. C. Miller

I DOUBT there being a spring in the past 50 years with so few days in which bees could fly. I used to think that discouraging, but have come to think it an advantage for colonies that need building up. If the weather is so backward that white clover does not bloom till the middle of June instead of the first, it gives a backward colony that much longer time to get ready for the harvest. "But," you say, "if bees cannot get out to gather, they will not build up." Beg pardon; observation thru many years has brought me to believe that in seasons when bees can fly only once or twice a week they will build up as well as if they could fly every day, *provided they have abundant stores in the hive*. You see a week of bad weather in spring does not stop brood-rearing; and then if a day comes for the bees to fly, they'll keep on for another week. But in a season like this, one must look out for starving colonies at the beginning of the clover-flow. [Your experience is almost an exact duplicate of ours. We believe we have never had so much breeding in our apiaries as we have had this past spring even tho we have had so many bad days, chilly to cold, with rain and even snow, with only occasionally a good day when bees could fly. The bees used up their stores at a tremendous rate so that many of our colonies at this date, June 7, are on the verge of starvation; and we have had some time of it in watching every colony, especially the big ones, at our outyards. Clover is going to come on late but is looking good. Practically all of our colonies will be in fine trim to catch the crop if it comes. This has been a year when we have been able to equalize the strength of colonies by giving the weak ones hatching brood from the strong, and giving to the strong combs of sealed stores from the weak. The plan has worked out well, and practically every colony will be in shape for a crop. The strong colonies bred so heavily that they would have been too strong, and would have swarmed prematurely. As it is, we have taken off the "gilt edge" of the big ones and put "pep" into the laggards.—Ed.]

G. M. DOOLITTLE says, p. 440, that in certain circumstances there will be little difficulty in getting the bees to go into the sections "provided the supers were on the hives a week or so before this rush

comes." Now, what good can it do to give the bees a lot of room to keep warm a week or so before they need it for storing? Well, I

don't know that I can fully explain the matter; but I know that Doolittle is dead right, and that it's better to have supers on a week too early than a day too late. The old rule (a rule still given by some) was to give supers when bits of white wax were put by the bees on the top-bar and upper part of the comb. That's a good rule not to follow. The crowding that makes bees secrete wax and deposit it where it is not needed is practically certain also to turn their minds toward swarming. They seem to say, "We're too crowded here; we've got to get out of this and go where we'll have more room." The point is that when bees begin to plaster wax promiscuously they're already in the surplus business; and when in default of your having provided surplus room, if they have decided that swarming is the way out, it's too late to get them to change their minds. Possibly there's something in the notion that they should get acquainted with the surplus room a little before they're ready to use it. At any rate it's a safe thing to follow Doolittle and give sections a week or so *before* they are actually needed.

"PRODUCE MORE Honey to Relieve Sugar Shortage" is the rather startling headline over an article, apparently editorial, in *The Practical Farmer*, p. 198. It starts out by saying: "Honey is better than sugar. It is more easily digested. It can be used in place of sugar or syrup." Isn't it fine to see a thing of that kind in a purely agricultural paper? It will do more good there than in all the bee-papers in the world. [The same slogan—honey instead of sugar—is being sounded in the daily press, thanks to literature sent out by the Department of Agriculture, Washington, D. C. For this we believe we are indebted to the energies of Dr. E. F. Phillips, one of the most active and energetic men in the whole Department of Agriculture.—Ed.]

W. J. SHEPPARD, *British Bee Journal*, 120, says that if $1\frac{3}{8}$ -inch spacing instead of $1\frac{1}{2}$ results in more swarming, "the reason would be that the latter spacing permits of freer ventilation between the combs." That's very important if true, and it's possible it may be true. He thinks narrower

top-bars without narrower spacing might remedy the matter, for he says "few bee-keepers would care to scrap their present outfit to change to the inch and a half spacing." In any case there need be no scrapping of outfit, for one frame less in a hive would allow the larger spacing. But if all that's needed is the greater ventilation, that can be obtained without any change. Simply stutter the extracting stories, thus giving ventilation to each, and give ventilation to section-supers by shoving forward the first super, and also give ventilation at top by means of the top-ventilating cover described on page 121 of the latest edition of *Fifty Years among the Bees*.

ANOTHER boost for sweet clover. This time it's "Sweet-clover Silage," *Prairie Farmer*, 440. George Nimmo, of Livingston Co., Ill., has fed sweet-clover silage for several years, and says he likes it better than corn or any other crop for silage. M. F. Baker, of Kankakee Co., Ill., has been using sweet clover and straw for silage, mixing one load of straw to four of clover, and he says: "It can be put into the silo at any time, as the weather conditions do not affect it. You can put up silage when the dew is on or after light showers, and it keeps just the same. . . . I believe sweet-clover silage is fully as good as corn silage and easier to handle, as it is not so bulky. . . . The sweet clover was just as sweet and nice this spring as when it was first put in the silo. A good stand of sweet clover will yield six tons to the acre."

I WAS rash enough to say to Dr. C. D. Cheney, page 357, "Surely, doctor, when you have biscuit and honey you don't eat it with a spoon." I thought that would squelch him. But he comes back at me by saying he was talking about eating *honey*, not biscuits. And then he tells a story of a newly elected Congressman who went to Washington to "look things over" before the session opened. The lobbyists took him in tow and made things pleasant. When he got back home his friends were curious to know what sort of a time he had enjoyed. "Fine! fine! Went everywhere, saw everything, met all the high muck-a-mucks; and such banquets and dinners! Why, I scarcely had my knife out of my mouth while I was away!" And that story, after I had admitted that I ate biscuit and honey *with a knife*! O doctor!

OPENING at page 258, I looked a long time at those seven pictures showing how to put frames together, and I said, "You'll take more time getting your machinery ready than it would take to put quite a lot

of frames together at all." And yet that's the sort of thing that pays well. Often it pays to spend more time getting ready than it takes to do the work after you are ready; as when you spend two hours getting ready to do a job that you can then do in an hour, provided that without such getting-ready the job would take you four hours. And then with the right sort of appliances you can do so much better a job. Then I took another look at the pictures and thought it would be fun to make frames that way. That scheme of making a hiveful at once is great! [That scheme of nailing frames has been carefully tested out, and experience shows that it saves a lot of time.—Ed.]

ALWAYS it has been a mystery to me how it happens that wax-worms may develop in a section sealed up moth-tight immediately upon being taken from the bees. The only answer I ever had was that the moth sneaked in and laid the eggs, until now J. E. Crane, p. 196, says: "When there are moths, bees evidently carry their eggs about the combs on their bodies, and drop them in all sorts of places inside the hive or on the section combs." Which is the right answer? It's hard to believe that a moth would be allowed to get into a super; but if Mr. Crane is right, how can a bee get the eggs on its body? Doesn't the moth always lay its eggs in a crack? Another thing: With blacks wormy sections are common; with Italians, very uncommon. If eggs are carried on the bees, why not on Italians just as much as on blacks? But if the moth lays its eggs in the hive, it's easy to believe that the Italian would be the better at keeping out the moth. I wish I knew the right answer.

MENTION is made in *The Country Gentleman* of 5000 acres in sweet clover in Livingston Co., Ill. Pure sweet-clover honey ought not to be impossible there. But is it desirable? White-clover honey with the vanilla flavor given by a little sweet clover is delicious; but would not that flavor be a little too strong in the pure article? [Sweet clover is making rapid headway in the middle West—see this issue, page 512.—Ed.]

THE *British Bee Journal* deserves credit for giving a definition for a "ripe" queen-cell—the first I think I've ever seen. It says, p. 116, "A queen-cell is 'ripe' when the bees have cleaned away the wax at the tip, leaving the cocoon exposed." Now, how long before the emergence of the queen does that occur? [Good definition.—Ed.]

JUNE 2 we still have fire in the furnaces, and not many days have been warm enough without it. [The same here.—Ed.]

I DO not now remember a season so late as this in over fifty years. Apple-trees are not yet in bloom, June 1. There were not half a dozen days up to June 1 with sunshine warm enough so the bees could fly freely, and not more than two or three days when the thermometer went up to 70 degrees. On June 4 the bees were bringing in honey as fast from dandelions as they often do from clover, in proportion to the size of colonies. Hurrah! we shall not need to feed sugar syrup this spring. Queens will soon be crowded at this rate.



J. E. Crane

"Brood-combs containing much small larvae should not be handled at a temperature much below 70 degrees," says Mr. P. C. Chadwick, p. 363, May. If we were to follow this rule we should not have done much handling of brood this spring. But does it injure young brood to handle it with care at a low temperature? On the morning of May 23, with the thermometer on the side of the house at 40, I went to the yard, where the temperature was doubtless several degrees lower, and lifted out most of the brood-combs from two hives holding them out for a few seconds, and returning them to the hive. Two days later, with an assistant, I looked over both hives without discovering any harm done to the tender brood. However, I confess that there seems to be something a little incongruous in looking up queens and clipping their wings as we did a few days ago in a temperature so low that overcoats were necessary.

That "Food page," 454, June, as it seems to me, contains the most sensible advice on the conservation of food that I have seen. One of the best things it contains is that it returns the advice to Uncle Sam, to conserve *its resources*. While everybody is advised to save to the utmost, Uncle Sam is advised to save the hundreds of millions of bushels of grain that is being more than wasted by using in making beer and whisky. "What is sauce for the goose is sauce for the gander."

I don't know who M. A. O. is, page 425, but he evidently knows what is going on in the "office" as well as in the outside world, and we outsiders enjoy what is going on in the office as well as those in the office enjoy what takes place outside.

On page 431, June, the editor concludes that the reason the bees gather no surplus from dandelion at Medina is because they have too

many bees for the territory. I will venture to guess that "locality" has something to do with it. If the weather is cold, bees will fly but a short distance, and large yards will gather little; but if the days are warm, as June 2 and 4, the number of colonies seems to make little difference. We have in our home yard some 200 colonies at this time, and—well, I wish you could just look at the combs, crammed with honey. Bees began swarming about here this year before apple-trees were in bloom—something I have never known before.

Page 355, May, John Preston True tells us of his success in keeping bees in an attic. This is practiced to a considerable extent in Massachusetts. A gentleman from the western part of Connecticut told me of his success. Indeed, he reported a larger yield of honey than almost any one in the state. He used the attic of a large warehouse.

What is said on page 461, June, about fiber containers, is of special interest at this time. May we add our testimony to that of the editor—that, after using such containers for some time, they seem very decidedly promising? A cheap attractive package for extracted honey is something I have been trying to find for a long time.

That illustration of the results of incomplete pollination on page 439, June, is most illuminating. The same is true of apples. By cutting into small or one-sided apples we shall find that the cause comes from imperfect or incomplete pollination, as can be readily seen by the lack of seeds.

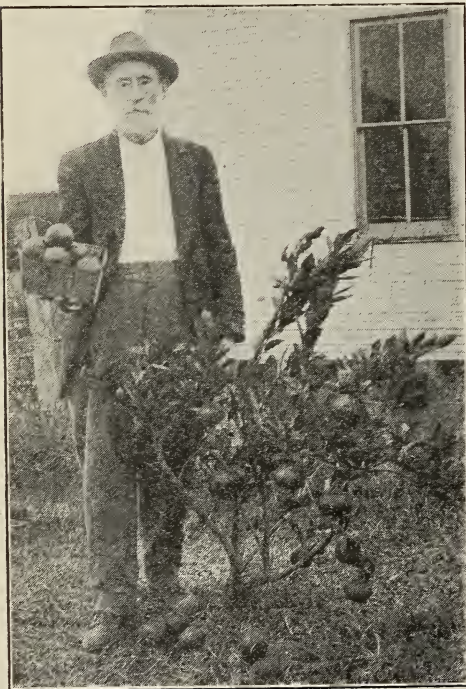
That story of the Repp boys raising fruit while their neighbors were raising hell is full of human interest, pages 433, '5. How true it is that one person or a very few have to do the thinking and pioneer work in almost every line of effort! and after they succeed the crowd follows.

Mrs. Allen tells, on page 455, of having to kill a queen because her eggs would not hatch. We killed one a week ago for the same reason. Who can tell us the cause?

Sideliners everywhere will do well to catch the spirit of earnest investigation and keen observation contained in Mr. Crane's

last paragraph, page 453, June. While the point forcibly brought out is that "the best time to study wintering is in the spring," the still broader truth is inferred that the best time to study any problem is before you are finally compelled to make a definite and perhaps quick decision.

Perhaps even more important is the idea of examining conditions with great care and ascertaining their causes. "Why is this?" should be the question the beekeeper constantly asks his bees. This I feel to be fully as true of the sideline as of the professional; for while there is not so great a financial consideration involved in the success or failure of his apiary, there is usually a great love for the work and a keen enjoyment of it, which should prove a stimulant for the close study that brings about an ever increasing knowledge and skill. Let us keep our bees, not with our hands and hearts only, but with our heads as well.



Louis A. Cameron, Bloomington, Tex., an enthusiastic side-liner who has read GLEANINGS ever since the days of "Rambler."

Beekkeeping as a Side Line

Grace Allen

I certainly interrupted a little family difficulty the other day. There was her ladyship, the queen, walking in state across one of the first

combs I looked at; there were sealed queen-cells, with one already hatched, and on the floor a ball of bees.

"I would think you were balling your queen as I didn't know you weren't," I told them as I broke up their party to learn who was the honor guest. It was a young queen, evidently the one just hatched. Not wanting to breed from this mother queen, I killed the young one at once, whereupon the persistent bees proceeded to ball the remains! But why did they let her hatch. I wonder, and then give her this reception?

When I asked Mr. Louis A. Cameron, of Bloomington, Texas, if I might use his picture, the one with the oranges and the baby orange-tree, since he had none with the bees, he wrote, "The tree and oranges look all right, but how about my homely Scotch mug?" Well, that's not how I classify the nice kindly face of this sideline beekeeper of Texas.

Mr. Cameron says he has been reading GLEANINGS since the days of "Rambler," and that he is a "bee crank," not happy unless he can hear the cheerful hum of the bees. His father was a beekeeper before him. "One of my earliest recollections," he writes, "is of hearing the old conch shell blow, as it said, 'Bees are swarming! Come quick!'" When his father discarded his old box hives he got a new kind with a row of drawers on each side of the brood-chamber. "I forget the name of these hives," he says, "but they should have been called 'Moth-breeders' for there were so many places the bees could not get into." They always had plenty of honey in those days, and his father still had bees when he passed over at the noble age of eighty-eight, "eyes and brain bright and clear to the end."

Mr. Cameron's start was the purchase of eight hives, in Illinois, six of them very large old box hives. He arranged for a beekeeper to transfer the bees for \$5.00, then changed his mind and wisely decided to do it himself. With the customary precautions of a beginner he made elaborate preparations for this big event, making a tent for the work, and assembling hammer, cold-chisel, veil, gloves, and smoker, wrap-cord, etc. The gloves promptly got

smear with honey; the string, once picked up, declined to be dropped; the gloves were thrown away in disgust, and then "I got so interested that I forgot bees could sting till I put my finger on one." It was all great fun at the time; and later, after watching an expert beekeeper do some transferring, he decided he had made a pretty fair job of it too.

When he first went to Texas there was horsemint everywhere, thousands of acres of it, but the honey was too hot to eat. Now it is made from cotton, mostly, with "the balance a Duke's Mixture."

As I have never been bee-hunting, and have always wanted to go, I was particularly interested in a bee-hunt Mr. Cameron took with two friends, two Mexicans, a good dinner, jugs of water, and a dozen water-melons (which is quite my idea of a proper spirit of preparedness). The two agile Mexicans would climb a big live oak, twenty to forty feet, and "chop as unconcerned as tho they were on the ground and it was houseflies buzzing about them."

It isn't much of a bee country around Bloomington, Mr. Cameron says. He has only a few hives now. Swarming is difficult to control, and a large part of the time the Gulf breezes are too strong for the bees to do much. "My main crop," he says, proving himself a true bee-lover in the saying, "is the pleasure I get from them. I love to nail the hives, put in full sheets of foundation, hive the swarms, and watch them housekeeping. I love to go among the bees at night, put my ear to the hive, and listen to that musical hum."

The present times, Mr. Cameron writes sadly, recall vividly the gloomy days of the war between the states, and set old memories stirring of Morgan's raid and Sherman's march to the sea.

In a great pile of accumulated (and, I regret to say, unacknowledged) letters from beekeepers I came across this today. Need I introduce the writer to the readers of GLEANINGS?

EAT HONEY.

"The shades of night were coming down,
When there wandered thru an Iowa town
A man who bore, high in the air,
A sign that made the people stare:

Eat Honey.

"Oh stay!" the farmer cried, "and chew
Some hog 'n hominy 'n Irish stew."

The stranger winked a crafty eye,

Then smiled and answered, "No, sir. I
Eat Honey."

About eleven P. M. that night

They found him sleeping snug and tight.

Some one had added to his sign

(Some beekeeper with deep design)

"*Eat Bonney Honey.*"

When it comes to deep designs and the working of them into clever and unusual advertising schemes, we all take off our bee-veils to Dr. Bonney, of Buck Grove, Iowa, to whom I offer thanks for the verses above. He is not responsible for the one below.

With hollyhocks a-bloomin'

'N roses all aroun'

'N little bees a-hummin'

With such a lazy soun',

Who wants to write a Sideline

Or pen a Dixie bee,

Or do a thing but listen

'N smell 'n look? Not me!

"My bees never even tried to swarm last summer. Would that be a sign of weakness?" Not necessarily, yet in connection with the fact that they were in bad shape when you got them in March, moths having been allowed to get in (which is a sign of weakness), it is probable that they did not build up enough to feel any crowded condition to tempt them to swarm—not that bees never swarm when not crowded, but that they are almost sure to do so when they are. Weak colonies *do* swarm (more's the pity), but strong ones can scarcely be restrained, save by eternal precaution and persistence.



Geo. J. Trostle, of Sibley, Iowa, with a second swarm of three-banded Italians. A picture of Mr. Trostle's apiary in town appears on page 44 of the January number.

A FEW days ago we had the honor of entertaining at dinner three young men who are leaving the offices of The A. I. Root Co.

They had just enlisted in the United States Naval Volunteers. They are bright-eyed, energetic, physically perfect specimens of young manhood, just the sort so needed in business, on the farms, and everywhere in our nation for constructive work. And they have become part of a vast, terrible machine of destruction. They have voluntarily given up their opportunities for business advancement, their social life, nearly everything we hold dear, for the present, possibly for years. They may even give up their lives to help bring permanent peace to the world.

We are told 40,000,000 men are engaged in the actual fighting; 20,000,000 more are making munitions of war. Millions have already died on the battle-fields; millions more have been crippled. With all these millions engaged in destruction instead of production, is it any wonder that the world is threatened with famine?

In the May issue I talked of increasing the food supply by gardens. In June I urged the prevention of every bit of waste. This month I am on the same old subject, increasing the food; but my slogan is,

CAN THE SURPLUS.

If there is any more disagreeable work than canning in a heated kitchen on a hot, sticky summer day, Stancy Puerden has yet to discover it. I would far rather be out in the hot sun, knocking potato-bugs into a can of kerosene. But this summer, if we get warm, nervous, and tired to the point of exhaustion canning the surplus, let us remember our brave American boys, fighting and suffering to bring about peace, and be glad we have the opportunity to sacrifice ease and comfort in the same cause.

OUR FOOD PAGE

Stancy Puerden

But in canning, as in everything else, by using our brains we can make the work pleasanter and save many hours. I have found it

a great help to get the cans ready a day or two in advance. Order fresh rubbers, for you can afford to take no chances with old rubbers this year. If you use the screw cap, see that you have a plentiful supply of good caps. Wash thoroughly the jars and caps, partly fill them with water, fit on rubbers and caps and invert them to see that they do not leak. It is much better for your temper than to invert a jar of boiling hot fruit and have a sticky, exasperating stream of juice ooze out on your kitchen table.

When you get to the actual canning, use the modern cold-pack method by all means. It saves time standing over the hot stove; it is accurate, if correctly done, and the food is far finer in flavor and appearance.

AN EASY WAY TO CAN SMALL FRUITS.

Let me tell you first of an easy way to can small fruits and berries. Sterilize jars and covers by putting them in a kettle of cold water, bringing it to a boil and boiling ten minutes. Keep the caps on the jars to which they have been fitted, by screwing them loosely into place before putting into the kettle. Sterilize the rubbers by dipping in boiling water. Use sound, fresh, not overripe fruit; pack it in the jars closely

and pour in boiling hot syrup, filling the jars to overflowing. The syrup is made by boiling together sugar and water, or honey and water, and may be of any desired density. Adjust rubbers and screw on the tops loosely; or if you use the spring clamp, adjust the top which holds the glass cap in place, but do not put down the spring. Stand the jars in a deep kettle, pail, or wash-boiler containing boiling water and pour in enough more boiling water to cover



Just the sort so needed in business, on the farms, and everywhere in our nation for constructive work.

the jars completely. The water will not enter them. Cover the kettle tightly; remove it from the range, and go about your way rejoicing. When the water is cold, remove the jars, tighten the caps, and invert to make sure of no leak. If preferred you may can the small fruits as you do the larger ones; but the foregoing method has been thoroly tested, and the product pronounced delicious by all who have sampled it.

CANNING LARGE FRUITS.

For the larger fruits it is advisable to proceed somewhat differently. You may blanch them before peeling if you choose, but it is not essential. Peel and cut up the fruit in convenient pieces and pack in clean scalded jars. The jars do not need the ten-minute sterilization for this method—pour in syrup to overflowing, have the rubbers in place, and adjust the caps loosely as before. This time have a false bottom of coarse wire netting, lattice work, or slats in the kettle or boiler. Place the filled cans on it and cover with boiling water as before; bring the water to a boil, and sterilize the required length of time according to the table furnished by the U. S. Department of Agriculture. Count from the time the water begins to boil. When the time is up, remove the jars, tighten the tops, and invert to be certain they are airtight. Keep the hot jars out of a draft unless you want to hear the glass crack.

VEGETABLES.

Until recently, in order to can most vegetables successfully it was supposed to be necessary to sterilize them in the jars two or three hours for several days in succession—a process so tedious that most of us hesitated before undertaking it. The new way is to blanch the vegetables and some fruits, and then pack in jars and sterilize the required length of time. Blanching consists in immersing the clean but unpeeled vegetables in boiling water for some minutes, and then plunging them in and out of cold water. This treatment destroys most of the bacteria which cause vegetables to spoil, and obviates the necessity for intermittent sterilization. It also shrinks the vegetables a little, thus permitting you to get more in the cans. After blanching, peel, cut up, and pack in cans, adding about one teaspoon of salt to each quart can; pour in boiling water to overflowing and sterilize according to the table. The following table is for the hot-water-bath canner, such as I have been describing, home-made or commercial. A water-seal or steam-pressure outfit shortens the time of sterilization, but does no better work.

TIME-TABLE FOR CANNING.

Apricots, peaches, rhubarb, blanch 1 to 2 min., sterilize 16 min. Berries and small fruits, do not blanch, sterilize 16 min. Apples and pears, blanch 1½ min., sterilize 20 min. Pineapple, blanch 10 min., sterilize 30 min. Quince, blanch 6 min., sterilize 40 min. Asparagus, Brussels sprouts, cauliflower, beans, lima or string, okra and peas, blanch 5 min., sterilize 120 min. Greens of all sorts, blanch 15 min., sterilize 120 min. Roots and tubers, blanch 6 minutes, sterilize 90 min. Tomatoes, blanch 1 to 3 min., sterilize 22 min. Corn, blanch 5 min., sterilize 180 min. Pumpkin, squash, and cabbage, blanch 5 min., sterilize 90 min.

You will notice vegetables need a much longer period of sterilization than fruits; but as you do not have to prepare a sticky syrup they are really no more work. And if you have that delightful garden I urged you to make, you can put up a can or two of surplus vegetables while getting a meal and hardly miss the time. Vegetables are like fish in one respect. You know the sooner a fish is cooked after being taken from the water, the better. In the same way the sooner a vegetable is cooked or canned after being gathered, the finer it is.

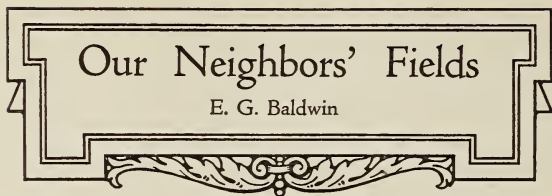
THE CONVENIENCE OF HOME-CANNED FOODS.

Next fall, when you survey your store-room shelves filled with delicious canned fruits and vegetables, your handiwork, a glow of satisfaction will permeate your whole being. When the man of the house telephones half an hour before dinner to know if he may bring home a business friend—of course no considerate husband would bring a guest absolutely without notice—your consent will be both prompt and cordial. Your home-canned vegetables and fruits will round out your dinner menu more acceptably than anything you could buy from a city delicatessen store. And, of course, don't forget a section or jar of honey made by your own bees.

USE HONEY IN YOUR CANNING.

On account of the scarcity of sugar, why not use honey as a substitute for sugar in your canned fruits? The method I gave for canning berries and small fruits is ideal for the use of honey, as there is no prolonged cooking at a high temperature to injure the flavor of the honey. It will also give good results with the second method, there being no danger of scorching when the cooking is done in the can. As honey is a syrup all you need do is to mix it with water, as sweet as preferred, bring it to a boil and pour at once over the fruit in the cans.

"MY experience has led me to believe that the business of shipping bees in combless packages from the South will be a success, and profitable both to the southern and the northern beekeeper who takes advantage of it under proper conditions and with proper care."—Fay Barber, in *Domestic Beekeeper*, p. 106, March.



March, says a good thing, p. 104: "The best thing to do is to leave them alone; but they (the colonies) must have plenty of stores to

push breeding. The best way to provide these stores is in frames of sealed honey. Feeders are a last resort." . . . "Colonies at the outyard gave the same average crop from frames of sealed stores given them as colonies at the home yard that were fed a little every night." [Good!—E. G. B.]

A Timely Word on Southern Honey—Editorial, *Domestic Beekeeper*, March, p. 125. "There are many sources of honey in the southern states where with intelligent handling and keeping the different kinds of honey separate from the inferior grades, where just as good honey can be produced as in the North." [Greater care, if anything, is needed in the South, in keeping one grade distinct, and the task is sometimes impossible; for one flow often overlaps another, in some localities. But even there, by extracting at the proper time, the bulk of the good can be saved from the poorer kinds of honey. It takes time to learn this.—E. G. B.]

"It takes about 65 days' breeding for spring stock to reach a point where they are truly ready for the honey-harvest."—E. J. Atchley, in *Western Honeybee*, p. 33, February. [This has been our experience. If we recall aright, the late Mr. Alexander used to claim that 30 days were enough to build up a colony for surplus strength, by his process of feeding daily every evening for that time. That never seemed long enough, and we never could make it pan out as he described it.—E. G. B.]

"How nice it would be if we could tell ahead just when the honey-flow would start! My records show a variation of over a month in the flow from orange. Now, if we get our colonies big and strong, and it becomes necessary to feed all those bees a month before the honey-flow starts, it is like wintering over again."—L. L. Andrews, in *Western Honeybee*, February, page 35. [Same here. In fact, we are now having just that experience in this locality. It looks as tho we might have to keep it up, too, for some time to come, as the orange here is a failure this spring.—E. G. B.]

On "Management Before the Main Flow," Floyd Markham, in *Domestic Beekeeper* for

A communication relative to honey-method of queen introducing has come to hand; a correspondent writes suggesting the method as a new one, an innovation, and makes no allusion to former articles by half a dozen different writers that have appeared in GLEANINGS, *American Bee Journal*, etc. I wonder how much valuable space has been taken up in the many bee journals, during the past decade, for instance, by articles that are but a restatement, often not any better, if as good, of former writings. For example, relative to the introducing method alluded to above, those interested are respectfully referred to the 1916 issues of GLEANINGS, pages 525, 800, 801, 840, 845, 1036, 1037; also to the *American Bee Journal* for May, 1917. Brethren, please let us value space and time, and read our journals a bit more carefully, keeping our files, back numbers, and indices, and using them.

Attention ought to be called here, it seems, to that excellent advice of Dr. E. F. Phillips, in his work "Beekeeping," p. 13: "To be a good beekeeper one must read and re-read the books and journals pertaining to the subject." We could also apply what he says on p. 23, relative to inventions, to writings as well. We quote: "There should some day be prepared a book. . . if for no other purpose than to show the ardent inventor. . . the steps that have already been taken and passed by, and to prevent the repeated rediscovery of abandoned apparatus."

"A light box, on legs twelve or fifteen inches high, about the same size as a brood-chamber, we have found a great convenience. It should have a cloth cover. We use it for carrying combs about in the beeyard, to protect them from robbers."—J. E. Crane, in *Domestic Beekeeper*.

ASSUMING that the preliminary work with the bees has been cared for, as outlined in Lesson No. 5, in the last number, we are now face to face with that very important part of the beekeeper's year, the honey harvest.

For convenience, three factors may be mentioned which have the most to do with the success of the undertaking, here named in the order of their importance — the honey-flow, the queen, and the management.

The honey-flow depends upon locality and the season. Since the average beginner can not change either one, and since it is out of the province of this series of lessons to point out the advantages of certain localities over others situated a few miles distant, we shall pass on to a brief consideration of the second factor, the queen. Few beginners realize how much depends upon the queen. With a locality second to none, an ideal season, and the very best of management, a colony with a queen of poor stock, or with one that is failing, is likely to be a useless consumer rather than a producer—a source of expense rather than of profit. In fact, there is no time when a poor queen shows up so noticeably as at the opening of the honey-flow. If the queen is not vigorous and prolific, and has not been able, therefore, to keep expanding the brood-nest as the warm weather warrants, thus furnishing by the time the main honey-

BEGINNERS' LESSONS

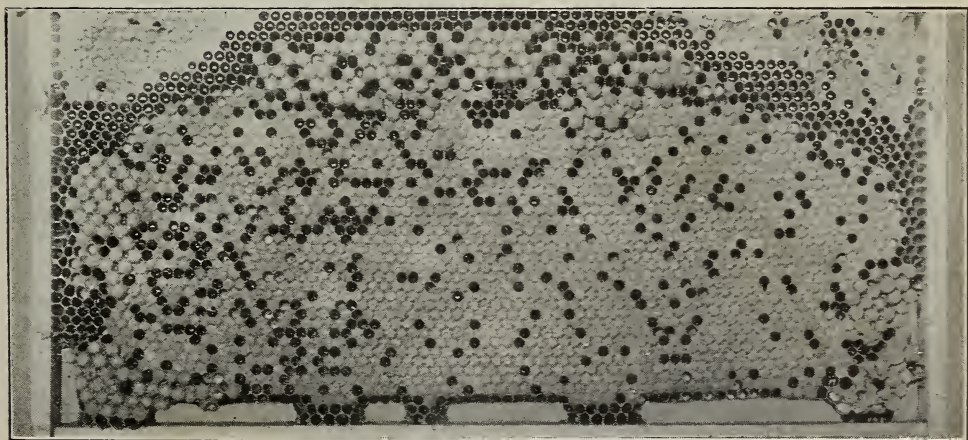
H. H. Root

LESSON NO. 6.—THE HONEY HARVEST.

flow commences a hive fairly boiling over with bees, and a brood-nest almost solid with brood in all stages, the bees, when the first rush of the new honey commences, will have a considerable amount of room for the storage of honey in the brood-combs, and invariably will start storing the honey close around the brood, and filling the cells from which the bees hatch, thus "clogging" the brood-combs with honey and limiting the already deficient queen in her room for laying eggs. Once having begun storing in the brood-combs, the bees are very slow about entering the super, and are more likely to swarm because of the overcrowded condition than to stick steadily to their work of bringing in honey. The very best way to avoid such a condition is to see that the colony has a vigorous young queen of good stock; in fact, if there is any doubt about the queen she should be replaced by a new queen some time after the first honey-flow is over and before the fall honey-flow begins. This will not help out in honey production very much the first season, but is a mighty good form of insurance for the next season. There is just as much difference in queens as in hens; and such differences are quite as important, if not more important, because more is at stake.

THE BEST MANAGEMENT.

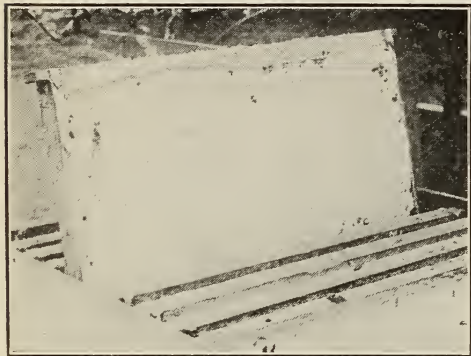
With a good queen, the upper story, soon after being put on as recommended in the last lesson, will become a part of the brood-



It is poor policy to have any queens that are not prolific. When there is as much drone brood as this the combs should be replaced. A good queen ought to have her brood-chamber so packed with brood at the opening of the honey-flow that there will be very little room for honey except in the super.

nest. The bees are thus given plenty of room, and there is every prospect for a strong, vigorous colony when strength is most needed.

As nearly as it is possible to estimate, about a week after the main honey-flow begins, the queen should be hunted up; and if she is not already on one of the brood-combs in the first story she should be placed



Combs spaced wide in the supers are bulged and therefore more easily uncapped.

there and a queen-excluder put between the two stories, so that henceforth no eggs will be laid in any of the combs in the super. Sometimes in an emergency honey may be extracted from combs containing sealed brood, especially when there is a shortage of comb and it becomes absolutely necessary to provide more room. The brood, if it is sealed over, seems to withstand the extractor's whirling very well. Honey intended for the table should never, never be extracted from combs containing unsealed brood.

As soon as the queen is confined to the first story by means of the excluder, one comb, or, better, two, should be removed from the super, preferably one at each outside, and the remaining combs spaced an equal distance apart. These combs will, later on, be bulged beyond the edge of the frame. The super will thus hold a little more honey than if the full number of combs had been used with close spacing; but, what is more important, these fat bulged combs may be uncapped in a little over half the time required for uncapping thin combs.

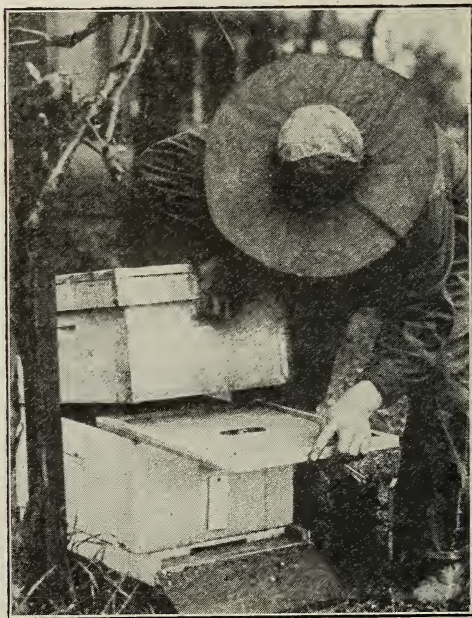
The fact that brood has been reared in these extracting-combs makes them stronger, easier to uncup, and less likely to break in the extractor. Such combs may be used year after year, and they will grow tougher and better all the time.

The beginner should never wait until the first super is entirely filled before putting on the second one, otherwise there is danger

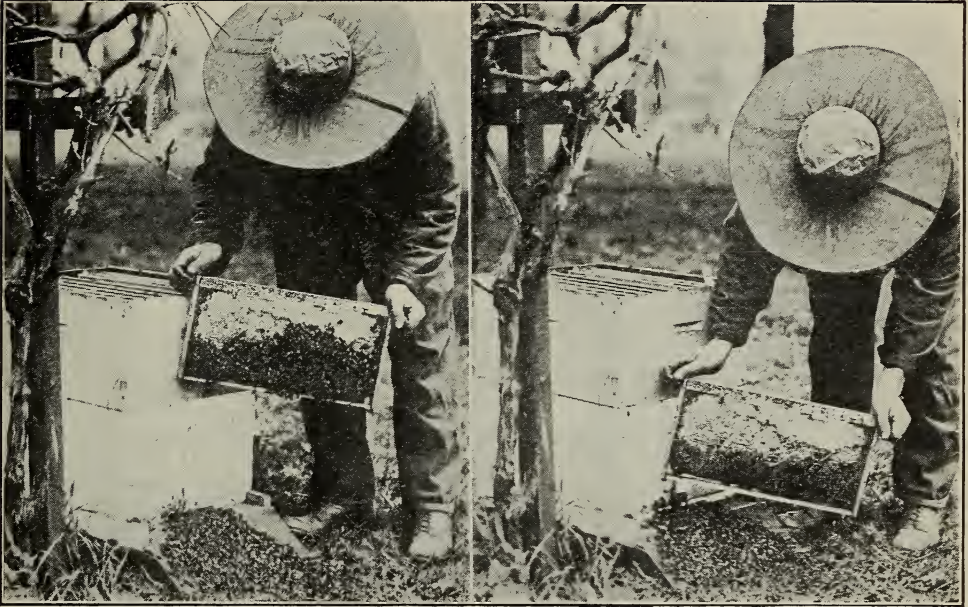
of bringing on swarming. When the first super, that is, the second story which had been used for a time for brood-rearing, is a little over half full of honey, it should be set to one side temporarily, the second super put in its place, and then the first partly filled one on top. This second super should contain in the center the two combs taken out of the first super to permit the wider spacing, the rest of the room being taken up by frames containing full sheets of wired foundation, provided no other extra combs are available. Until the foundation is drawn out into combs the frames should be closely spaced.

It does no harm to leave the full supers on the hive, stacking them up three, four, five, or even six high, if necessary and if the honey-flow warrants. The nearly full supers should always be put on top, the empty ones underneath next to the brood-chamber. The longer the honey is on the hive the thicker and richer it becomes. This can not be done in case of comb-honey production in sections; for if the sections were left on very long after being completed, the surface of the cappings would become soiled by reason of the bees passing over it so much.

When it is time to begin extracting, the bees may be trapped out of the super by means of the bee-escape, which, if placed



Sliding a screened bee-escape frame between the brood-chamber and super. In about twenty-four hours practically all the bees will be trapped out of the super, and the honey may be taken off without the bees knowing anything about it.



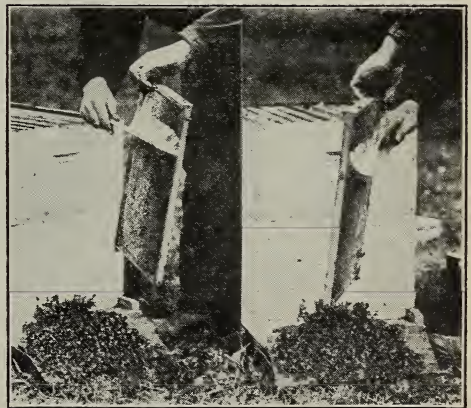
To shake bees from a comb, hold it as shown and give a sharp jerk. Most of the bees will be dislodged at the second or third jerk. It does not pay to try to shake off every bee. The few remaining should be brushed off.

under the super in the afternoon, almost completely frees the combs above from bees by the next day. The honey may then be removed without the bees knowing anything about it—no hard work, no stings, no danger of robbing; in fact, if the honey is not removed from the hives until after the honey-flow has ceased, a beginner ordinarily should not attempt to get the bees off the combs by any other plan; for after a few days of idleness following a good honey-flow, the bees are prowling around, apparently just looking for trouble, and a little exposed honey is like easy money, and the bees are quick to begin to rob. During a honey-dearth following a flow, therefore, a beginner can not be too careful, for it is easier to prevent robbing than to stop it once it gets started.

It is advisable to use the screened or ventilated pattern of escape-board in order that the honey may not have so much of a chance to cool off. Cold honey is much harder to uncup and extract than warm honey.

While the honey-flow is still on there is no danger of robbing; hence it is not difficult to shake and brush the bees from the combs. A little smoke should be blown in at the entrance of the hive, the covers taken off the super, and some vigorous blasts of smoke blown down thru the combs, thus driving the bees out of the way. The combs

should be withdrawn from the super and given a sharp shake or two while held over the alighting-board of the hive. Not all of the bees can be dislodged by shaking, and therefore the few remaining should be brushed off, the comb being held as shown in the illustration, and the brush quickly swept over both sides alternately. With the comb held in this position it is not necessary to reverse it when brushing the other side. If the beekeeper has a helper it saves con-

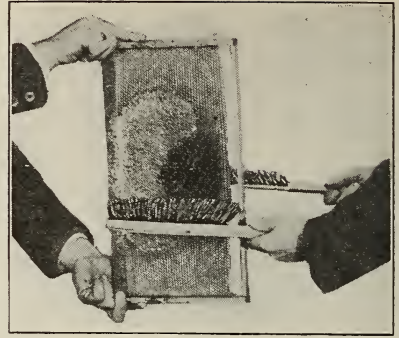


A good way to brush bees from a comb. Both sides may be brushed without changing the position of the comb very much.

siderable time to let the helper do the brushing with a brush in each hand.

As soon as the combs are freed from bees they should be put in an empty hive body and wheeled to the room where the extracting is done. It is hard to find anything more convenient than a wheelbarrow for carrying heavy combs, especially where the ground is rough and uneven. Even tho the bees may be bringing in honey, it is well to keep the box of combs covered, and, of course, if there is a honey-dearth, the box should not be left uncovered a second longer than is absolutely necessary.

The average beginner had better tier up the extracting-supers until the honey-flow is over, letting the full combs remain on the hives until just before time to extract. That is the easiest plan, and the plan that yields the best honey, for the longer these combs stay on the hives the richer and thicker the honey becomes. There is nothing gained by extracting before the flow is over except in localities where another source begins to yield before the first one



A helper with a brush in each hand brushing both sides of a comb at once.

is over and it is advisable to keep the two kinds of honey separate. And, the first year or two the beginner may be caught with too few supers and extracting-combs to permit tiering up till the end of the flow. Then it becomes necessary to extract to make room. Lesson 7 will give some of the details of extracting.



A practical extracting outfit for the beginner. The barrel with both heads knocked out and a coarse screen nailed to the bottom makes a very good uncapping-can when supported over a tub. A leaky barrel is all the better. Instead of a screen a large number of holes may be bored in the bottom and sides; then when one barrel is full it may be replaced by another. A large cheese-cloth bag with a barrel-hoop nailed to the mouth, and supported in a can, makes an efficient strainer that fills all requirements. The honey is not supposed to be drawn off until the straining-can is full. Bits of cappings and other impurities will thus float to the surface instead of gathering in the cloth and filling it up. Of course a good tight barrel will answer just as well as a metal can, provided it has a faucet or gate at the bottom.

Mother Bee NURSERY RHYMES

By M.G.P. (*Mother Goose Plagiarized.*)

BUZZ, BUZZ, BLACK BEES, HAVE YOU ANY WAX?
YES, SIR, YES, SIR, IN OUR LITTLE SACKS.
SOME FOR THE WORKER CELLS, SOME FOR THE DRONE,
BUT MOST FOR THE QUEEN-CELL THAT STANDS
ALL ALONE.



GLEANINGS FROM THE NORTH, SOUTH, EAST, AND WEST

SUCH a cold,
disastrous
spring! No

rain in April, no sun or warmth in May. And now in June an occasional good day, then rain and several days of chilly cloudy weather, with starting thunderstorms and pouring rains practically every night.

Clover has come out nicely as a result of recent rains, but of what good is clover bloom when bees can't leave their hives to work it?

Colonies are in unusually good shape, being heavy in brood. At the last meeting of the Davidson County Association one member reported one colony with thirty combs of brood.

From Memphis comes the word: "For the first time in five years we are getting a good clover and persimmon flow at Memphis. Locust was ruined. Tupelo had started wonderfully, when along came some ice, and in a few days the scale hive fell off 15 lbs. and lost for three weeks."

"I shall be satisfied with half a crop," one big beekeeper said recently. "The prettiest prospects I ever saw spoiled," sighed another. "The marketing problem," one writes, "threatens to resolve itself into a question, not of where and how we shall dispose of our honey, but of where and how we shall get sugar to feed our bees."

As to honey prospects, the season has played seesaw with us. First we were on the very pinnacle of high hopes for that always anticipated "bumper crop" "Mary" refers to in her last letter. Then down we came, hard, with an outlook of complete failure. Now it looks as tho we might finally settle somewhere between.

These are busy, busy days for us all, in all parts of the country. Many are trying to do extra work because of the serious conditions of the time. With earnest enthusiasm the beefolk here mean to do their share; but unless the present prospects improve materially, their most effective work this season will have to be thru other lines than honey production.

If the "proof of the pudding is in the eating" (and isn't it?), the wisdom of Dr.

THE DIXIE BEE

Grace Allen, Nashville, Tenn.

Millers's slogan
"Breed from the
best" would
seem to be es-

tablished. A gradual increase thru the years to three times the former average production is pretty convincing. I move that slogan be officially adopted. "Eat honey," "Keep more bees," and "Breed from the best."

"A misdemeanor to keep bees in a box," and a "penalty of from \$5.00 to \$25.00 for each offense"! Well, Michigan is progressive! I venture that the reading of that item, page 460, made Mr. C. E. Bartholomew heave a sigh and wish some one would or could put such a law thru in Tennessee. He is doing a lot himself, tho, to raise the standard to the point where some such demand might be made powerful enough to be granted.

SOME RESULTS AT COUNTY MEETINGS.

County organization goes on merrily in Tennessee. The Williamson County Association reaped the first practical benefit by purchasing several thousand honey-buckets in one order, being thus able to get a slightly better price. Moreover, as I understand, they actually got the buckets, which seems to be something of a feat these days.

At the last Davidson County meeting, Dr. Ward, whose reappointment to the state inspectorship has just been announced, gave a particularly able and instructive talk on the two foul-brood diseases, telling clearly and specifically how to identify each and how to treat each.

Speaking of disease, a friend has recently sent me a clipping relating that some one once wrote a certain country editor asking how to treat sick bees. "This is outside my experience," the editor wrote in reply; "but personally I always treat all bees, sick or well, with respect."

"Henry," Mr. Allen asked the negro porter down at the publishing house on June 5, "have you registered yet?"

"No, suh, I ain't yit, but I'se gwine to."

"How old are you, Henry?"

"I'se 'bout twenty-two," Henry deliberated, "er twenty-three."

"Why, don't you *know* how old you are?" Mr. Allen expostulated, to draw him out.

"No, suh, not rightly; 'n Pappy he don' know neither. I done wrote Mammy—she's

up in Louisville, cookin'. Mammy she can't read nor write, but somebuddy done the writin' fer huh, an' she say she don' jes know huhself how old I is; but she know my birthday's in July, kase she remember when I wuz bohn hit wuz blackberry time, an' there wuz honey in the gums."

* * *

BIRDS THAT WERE NOT INVITED BACK.

Mr. Allen says the weatherman, the bugs, the cats, and even the birds are in league with the enemy. (Think of us Americans talking about "the enemy"!)

The weatherman has nearly ruined the honey crop and has utterly demoralized the newly recruited and largely untrained "Army of the Furrows;" cutworms, potato-bugs, and their allies have overwhelmed and devastated many a promising garden; cats have crossed the boundaries and thinned the peaceful ranks of young chickens; while the birds have been conducting air raids in the apiary, with many a fatality resulting among the bees.

It was the poor little mutilated remains that first betrayed these unsuspected attacks. One morning I discovered on the top of hive after hive bits of dead bees—never the whole bee. There were heads and abdomens with wings and legs galore, but never once a thorax. I brushed them off clean, and looked again after supper.



There they were again. Again I brushed them off, but the next morning found others. We started watching. For several days we saw one bird, a colorless sort of specimen, with a yellowish breast, hanging around the beeyard, sometimes perched on top of the hives and then darting out and down toward the entrance, evidently catching a home-coming bee and returning to the hive-top to eat it. After several days we saw another early one morning—a beautiful bright-red bird. Then we knew the one first seen was the female; indeed, she soon appeared and joined in the sport. The brilliant and dashing newcomer made a spirited attack; he not only darted and caught and slaughtered and ate, but, as not many bees were flying so early, he finally dropped to an alighting-board where he stood helping himself to one or two bees within easy reach, and at last quietly poked his head right into the entrance! How I wanted that picture! But it lasted only a minute; and, tho he came back several other times, we never got another chance at that particularly guilty attitude. The marauder seems to have registered in Reed's Bird Guide as the summer tanager and wife, or Mr. and Mrs. Piranga Rubra. As they were in our yard for only about two weeks, I judge they were merely visiting tourists. In spite of their great beauty they received no invitation to stay. "Handsome is as handsome does."

ALREADY
communications are
coming in from

FLORIDA SUNSHINE

E. G. Baldwin, Deland, Fla.

the large dealers in honey, and honey is in demand, in big letters. We would advise beemen of the state not to sell too early nor too low. Most of them are apt to be "jewed down" by the wholesalers, who take advantage of the fact that we fall under the class "Southern Honey;" and as that has always had to take a lower price in past years, beemen have not been prompt generally over the state to awake to a realization that "honey is honey" this year, and stiffen in their demands. The latest authorities say that nobody can tell now what the crop of 1917 will be, but advise beemen to gather and save all the available nectar possible, and ask a good price for their honey in the bargain. All of this is good and timely advice.

* * *

We wish to repeat a dictum of Dr. Phillips here; it is worthy of world-wide pro-

mulgation. He writes:

"The present emergency offers

a great opportunity to the beekeeper, not only to increase his business so as to make it more profitable, but especially to provide a valuable food product for the nation."

* * *

Reports the past month from interior sections of the state indicate that many bees have died from starvation. It is just as we predicted. Many were short of stores at opening of orange-bloom period, and the cold weather killed that source of honey; consequently the usual replenishing of hives was lacking, and loss resulted where proper attention was not given to the bees. The "honey-makers are money-makers," where properly managed; but letting them starve is only killing the goose that lays the golden egg.

* * *

Just to hand comes the timely bulletin from the Co-operative Extension work in

Agriculture and Home Economics, from the U. S. Dept. of Agriculture, and State Agricultural Colleges co-operating, approved by Bradford Knapp, Chief, Office of Extension Work in the South. The appeal to county agents, by our own Dr. Phillips, Federal Apiculturist, is to the point, stirring and timely. Write for it, all beemen, if you have it not already, and then act on the suggestions given. Florida, especially, needs an awakening, for we are further behindhand in all extension work and state inspection, etc., than probably any other of our sister states. More efficiency, more wise economy, more foresight, this is what we need, what we must have.

CLIPPING QUEEN'S WINGS WHILE SHE IS ON THE COMB.

Mr. F. M. Perry, of Bradentown, Fla., writes: "The best and surest way is to clip the queens right on the combs, not touching them with your hands. I can clip her this way while another man is catching her or trying to catch her." We suppose that practice is everything. Our efforts to clip while a queen was running loose have not been successful, either from point of time saved or efficiency. Once we nearly lopped a queen's head off, and once did remove a leg as neatly as you please, destroying a valuable queen. Our practice, however, has made us dextrous in catching queens, and probably every other beeman who practices clipping regularly becomes as dextrous as any one else. It does not take long to clip the wing. The time is usually spent in finding the lady. Sometimes she is most exasperatingly coy and retiring. Our correspondent's remark reminds us of the reply a good housewife made to a newspaper request for information as to the best way to kill cockroaches. She answered the notice by the following: "The best way I find is to place them between the leaves of a large book, and close the book violently and suddenly. Kills them every time. Easy enough to kill them. Trouble is in catching them." See the point, friend Perry?

FIRST AID.

Dr. E. F. Phillips is issuing bulletins and press notices to beekeepers of different states, by states, as rapidly as possible. The individual states are also taking affairs in their own hands, and doing "their bit." Mr. Wilmon Newell, of the Crop Pest Commission, Gainesville, Fla., has issued a press notice offering his services to beekeepers of Florida during this time of strain and stress, as well as time of

grand opportunity. The federal office, Washington, has not yet got to Florida but will as soon as possible, Dr. Phillips assures me. Every beekeeper can do his share toward the war, the country, and his state by putting and keeping his apiaries in very best possible shape, and working them for all they are worth, this year and the next, and then next. By that time it may have become a habit, and a good one too. We can not have too much efficiency.

THE DIFFERENCE IN LOCATIONS.

This year illustrates, as never before, the decided difference in value of locations in Florida. Inland the bees have not gathered enough honey, generally speaking, to supply their brood-rearing needs since the close of the fall flowers last autumn. Many colonies, in apiaries not well kept, have starved, and many more, right now,* need attention. Along the river courses, however, and near hammock lands of the coasts, bees have done better. And right now they are storing some surplus—gallberry, palmetto, etc., being the chief sources so far. Many beemen are moving their bees to such more favored locations. We advise prospective beemen to choose always sites bordering some swamp, hammock, or river course—the more the better. Orange locations will probably not be back into normal again for honey for three years or more, north of the middle of Florida. Further south a year or two may repair the loss that was occasioned by the freeze in February. DeLand is about the worst place possible for an apiary at this particular time.

THE CONDITION OF THE HONEY-PLANTS.

Reports come to us of bees humming briskly on the basswood in the vicinity of Sanford, near the heavy hammock lands of the river. They are also doing something on it over in the East Coast section. If any one doubts it, let him visit those sections at this writing (May 20), and he will be convinced. We have the linden all right; but it is only favored spots that have enough to make a showing in supers. Friend Baldwin, of Sanford, writes: "Clute is going to extract his honey now on the hives as far as justifiable, in order to make room for basswood nectar. If he gets any basswood honey it will be the first new honey this season."

The cabbage palmetto is already showing the long whip-like shoots of bud-stems that appear long before they blossom out into

* Most of the items on this page were written for the June issue, but reached us too late for insertion in that number.—Ed.

the plume-like racemes, creamy white. They are appearing rather earlier and more profusely than usual. Here's hoping for a good flow from it when it does bloom. We need it. Saw palmetto does not appear to be yielding overly well thus far. It has been too dry up to the present time, and buds are blighting in many places. We are glad to note that the mangrove on the west coast, below Tampa, is also showing buds, not being killed by the cold wave in February. Florida may have a crop of honey yet.

The partridge pea (*Cassia chamaecrista*) is showing up well, and in July it ought to be yielding nectar. While the honey is very dark-red, and strong in flavor, this year anything that is honey will be welcome. It will cut down the sugar bill, or will bring a good price with the baking trade. Let us keep our bees strong ready to take advantage of any sudden or unexpected flow. Honey is honey this year.



I HAVE just succeeded in completing an electric imbedder by the use of the family toaster as a reducing transformer. It was so easily and quickly made that I was surprised by my success. Three to five seconds are sufficient to melt the wires in.

I use a 3/8-inch entrance across the front of my hives, and find that a piece of redwood shake makes a good entrance-guard. Break it any length you choose and slip it into the part you wish closed, and that is all there is to it.

Dr. Miller says, page 189, March. "every laying queen ends her career by being superseded by the bees." I wish that were true in all events; but some of my queens have a habit of playing out during the winter when there is no chance of being superseded.

Mr. Porter, of Fresno, in describing the texture of granulated bluecurl honey, says the grain is very fine. I find it quite the opposite here, as it becomes coarse, and so hard in the combs that the bees often remove it from the cells and out of the hive without making use of it.

I have abandoned my record-book of colonies as being too much trouble and too

CROP PROSPECTS.

The outlook for Florida is not as rosy as it might be, but it is still too early to state definitely. A fair crop of saw-palmetto honey has been taken in the middle and southern parts of Florida, and bees are building up and beginning to store some surplus, even in the inland portions. On the river and coastal lands bees are storing well now, from gallberry and palmetto, in the middle and northern parts of the state. But with orange cut out, the mangrove somewhat hurt, and the drouth that is rather trying just now, the outlook is none too reassuring. However, brothers, bee-men, fellow-citizens, let us keep our dish right side up, and be ready for any blessing that comes our way.

A slight touch of foul brood (American) has made its appearance on the East Coast. Prompt measures have been started to stamp it out. Report's later.

IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

great a time-consumer. A leadpencil for records on the

hive answers very well for history, while a few small stones on the lids show the immediate needs of the colony. If there is an exceptionally fine colony it will not be forgotten.

I have always been opposed to the Hoffman frame, but am now convinced that its advantages far offset its disadvantages, and hereafter I expect to buy no other make. The advantage of always being ready to move is in itself one of the strongest points; and the self-spacing, which of necessity means uniform spacing, is a very desirable feature.

It is poor economy to spend valuable time and much feed trying to nurse a weak colony to a prosperous condition. It always reminds me of the Irishman who purchased a pig from his neighbor. The neighbor, after a few weeks, asked the Irishman how the pig was doing. "Well," said the Irishman, "he is the greatest glutton I ever saw. He drank a whole pail of swill; and when I put him in the pail he did not half fill it up."

My bee-ranch neighbor called to me as I was driving past his house to see if I could tell him what my bees were doing in his chicken-yard. I went over, and was not

long in discovering they were gathering up the dry mash he had provided for his chickens and making away with it. This clearly showed the scarcity of pollen during January, and indicated that pollen substitutes might be of value at times even in California.

The most ideal condition for a favorable honey season and brood-rearing is not a continuation of warm open days when the bees can fly at will. During such a season

the flowers and honey-bearing plants develop far in advance of the bees. The ideal season is one where there is plenty of pollen and a little honey available whenever the bees can get out, but sufficient bad weather to keep the honey-plants from developing faster than the bees. If the bees can get out to pollen and honey at intervals sufficient to keep up brood-rearing, and at a time when the honey-plants are held back while the breeding is in progress, it is an ideal condition.



IT is June 5 and we are still waiting and hoping for summer weather. We have had cool windy weather continuously almost every day this spring, and as a result vegetation is fully two weeks behind the average seasons. One thing to be thankful for is that there have been practically no frosts for some weeks past, so everything should be all right if the weather once turns warm. The clover is late, and looking none too well in this part of the province, and will likely be short in growth, no matter what the weather is like from now on. The late spring should be favorable for basswood where there are any of these trees left; and since the buds are barely showing at date of writing they will in all likelihood escape frosts. Quite often a June frost kills the basswood buds, as was the case a year or so ago here in Ontario.

NOTES FROM CANADA

J. L. Byer, Markham, Ont.

weather at first, followed by a long period of drouth. While

we regret the failure of the apple crop, nevertheless this is a factor to take into consideration when the demand for honey is under discussion, as apples are one of the staples in almost every household. Experience has taught us that when the material for apple sauce is abundant there is never quite as heavy and continued demand for honey as when the apple crop is light.

The advice given to the combless-package men on page 430, June, is good so far as it goes; but so far as our experience teaches here in Ontario, the most vital point of all is not mentioned. *Put enough food* in the cages. Different lots have come into Ontario this spring with the bees starving on arrival, even when there had been no delay in transit. It is hard to explain the differences in conditions, sometimes. One lot came from the south, and the food in the tins was hardly touched. Another lot came from the same man at the same place, and the bees were on the road but 12 hours longer than the first lot, and yet the food was all gone. *Put lots of food* in the cages.

The rainfall has been light here in York Co., but nothing has suffered from drouth yet. A nice rain falling today will help a lot. In some of the western counties of the province there has been too much rain—almost as much as last year, one report says. This will undoubtedly mean better clover prospects for western Ontario than for the eastern and central counties, as a wet May generally means a good growth of alsike.

Fruit-trees are just starting to bloom—the latest by all odds of any season since we have kept bees. Cherries, plums, pears, and some early varieties of apples show a fair lot of bloom; but there is almost a total dearth of blossoms on all late varieties of apples. Secretary Hodgetts, of the Fruit-growers, says that reports indicate this condition nearly all over the province, and that a *very light* crop of winter apples is in sight at best. Last year's apple crop was very short, not on account of lack of bloom, but because of heavy dropping late in the season, caused by excessively wet

In the May issue we mentioned that a friend had called on us with samples of paper containers for honey. We also stated that we had no information as to prices, etc. Surely that was bad business on our part, but it again proved that GLEANINGS is a good advertising medium. Letter after letter has come asking for more information, and I have had to answer in each case that no more information was available. I have heard nothing of the matter since. Whether the prices were not right to suit the agent I cannot tell, but he has not called since. One thing sure, we shall give no

future "advance notices" in GLEANINGS unless sure of being able to deliver the goods. We don't blame people for writing for information, and we don't positively dislike writing replies, but it is even possible to get too much of a good thing.

CAN EUROPEAN FOUL BROOD BE QUARANTINED?

On page 473, June issue, C. F. Bender says that he has entirely eradicated European foul brood from his vicinity by using the Alexander treatment in conjunction with a plan of his own—moving infected colonies as fast as discovered to a quarantine yard not nearer than two miles from the nearest bees and then treating them at once. He would have some difficulty in using the latter plan if he lived in many sections of Ontario. Certainly we could find no place near us that had no bees within two miles of it. European foul brood is rapidly spreading in Ontario, and it looks as tho a good many of us in the near future will have more experimental knowledge of this disease than in the past. That we can all be as successful as Mr. Bender in combating this plague is my earnest wish.

WHAT CONSTITUTES A FAIR PRICE FOR HONEY?

From what evidence it is possible to obtain, it looks as tho the '16 crop of honey in Ontario is about all gone. As stated in the last lot of "Notes," some firms are trying to buy the new crop in advance. I have heard of no sales being made, and as a rule the beekeepers are not keen for taking a chance when there is so much uncertainty in the air. Almost every letter reaching me

speaks of the *necessity* of getting a higher price for honey than in the past, and I believe that the great majority only want a *fair* figure for their produce. What constitutes a *fair* price is, of course, a debatable subject, especially if we consider the price of some of the food staples at present. Personally, I think there should be an increase over last year's figures; but I do not think it would be wise to try to figure on such advances as have been made in bread, pork, etc. So long as the different grades of syrup are on the market at a low price as compared with honey, there is no use of unduly inflating the price of the latter; for while certain classes would have the honey at any price, the great mass of the people are forced to consider their pocketbooks, even if that does mean discrimination against their stomachs sometimes.

CANS AND CANS AND CANS.

Being told that future delivery and future prices were uncertain factors in the matter of getting honey-tins, we gave our order about six weeks ago for a few hundred tens and fives as well as some sixties. We expected delivery some time in the honey season, as last year it was hard to get them any time near the date promised. Contrary to expectations the pails have come already, and we have had to pile them in outbuildings where they will have to lie for a long time, possibly for another year for all we know. One consolation in having bought early is that they have since advanced in price. Should there be no crop, and should the pails be cheaper another year, even this one "consolation" will disappear.



THE topic most under discussion by the greater

IN TEXAS

F. B. Paddock, State Entomologist

number of beekeepers of this state is the very short honey crop in that section of the state which usually produces the majority of the total output of the state.

Thruout the southwest section there is at present little or no surplus honey. In the south section the only prospect for a honey-flow this season is from mesquite during its second blooming period—from the middle to the last of June. In this district there will undoubtedly be a light flow from cotton in scattered areas. In the western section there are prospects for a honey-flow from huajilla, catclaw, whitebrush, and mesquite. In some localities it has been so dry this year that bushes which usually bloom in

February are just now coming into bloom. In the alfalfa sec-

tion the prospects are good for at least a normal honey-flow. The main crop here is made late, and the bees have had an opportunity to build up in spite of the heavy spring losses. In the south-central region the horsemint has not yielded any surplus. With us the cultivated horsemint dried up very quickly after coming into bloom. The bees were not able to work it over seven to ten days. There is yet some wild horsemint which came on later that is sufficient to keep the bees from starvation.

The cotton-flow will undoubtedly be close to normal. In the north-central portion the early flow has not been missed as much, and in some section the bees are in very good

condition to take care of the cotton flow that is to come. In the eastern section the honey yield this season will undoubtedly be above normal. In this section the bees wintered unusually well. There was an abundance of early flow, and the bees are now in prime condition to take care of the basswood flow. Thruout the north section the prospects for a honey-yield are good from horsemint, sweet clover, and cotton.

Upon such prospects as just mentioned, the honey market is very unsettled. However, there is an upward trend in honey prices, but even at that little honey is being offered for sale. Thruout the south and southwest sections honey is being listed at 11 cents for extracted and 13 for bulk comb. Very little honey has been listed for sale over the remainder of the state, but the prices prevail strong and are continually going up. There is a general feeling among those who are best informed on market conditions that future prices for honey will be much higher than they are now. There is also a general trend toward the production of extracted honey.

* * *

Since the last notes were written the efforts of the Director of the Experiment Station and the beekeepers have resulted in the legislature providing for \$5000 for foul-brood-eradication work. The appropriation has not yet been signed by the Governor, but it is hoped that the item for this work will be allowed to remain in the budget.

* * *

The program for the 21st annual meeting of the Texas State Beekeepers' Association has just been completed. This meeting is held each year in connection with the Texas Farmers' Congress at College Station. This year the meetings of the Beekeepers' Association are held during the last two days of the congress, which is in session August 1, 2, and 3. The president of the association, Mr. E. G. LeSturgeon, of San Antonio, is making every possible effort to have this meeting the best that has yet been held. It is hoped that the beekeepers of the state will help their president attain his goal. Many beekeepers have already signified their intention of coming to the meeting and a large attendance is expected. The topics which are found on the program are certainly as interesting as any that have ever been presented to the association. They are timely, and should be of much interest to every beekeeper in the state.

* * *

Up to the present time there has been but very little demand from the beekeepers of

the Rocky Mountain region for combless packages of bees. Many of the larger dealers in this state were already well filled with orders when the emergency call came from Dr. Phillips for an additional supply. The greatest difficulty in this trade the past season has been to furnish queens when requested. The queen-breeders of the state have been forced to turn down more orders than they filled. General unfavorable conditions for mating is given as the chief reason for the shortage in supply.

A REAL WINTERING PROBLEM IN TEXAS.

It seems that the wintering problems in this state are not solved, contrary to the common belief. The winters here are mild, and over the entire state no extra attention is given the bees to carry them over the winter. Occasionally, for one reason or another, a beekeeper will leave on a super of sealed honey. There are those who will argue against this, saying that the additional room to keep warm will tax the bees and cause loss. The fact remains that we have so much mild weather during the winter that there is no way to keep the bees from flying, and at such times they need stores. The time is at hand when the beekeeper must see that his bees go into the winter in good strong condition and with plenty of stores. Even with honey at a high price it is not advisable to dispose of all the crop and allow the bees to suffer the following spring. Every one who has had to feed 10-cent sugar this past season wishes that he had some of the 5 and 7 cent honey that was sold last fall. Every beekeeper is anxious to have his bees up to the greatest possible strength at the time the honey-flow comes on, but it often happens that the bees cannot reach this condition without assistance from the beekeeper.

FEATURING HONEY AT THE FAIRS.

Each year county fairs are held in various localities over the state. At most of these fairs a display of honey will be found, usually in some inconspicuous place. At a few of the fairs there is a department for apicultural products, and small prizes are awarded to the exhibitors. Generally speaking, the beekeepers have not yet come to realize fully the value of such exhibits in increasing the consumption of honey. To the few beekeepers who exhibit at the larger fairs it is a matter of astonishment how little the public knows about honey. They feel that they are conducting an educational campaign for the betterment of the industry at large. It is good, however, to note the increased interest in apicultural displays at the larger fairs. Each year sees new in-

terests which have usually been successful at some of the smaller fairs. Mr. T. P. Robinson, of Bartlett, Texas, who is in charge of exhibits at the Texas State Fair, which is held in Dallas, is already making trips among the beekeepers with a view of stimulating interest in the honey exhibits at the coming fair. The beekeepers of this state should realize now as never before the necessity of bringing before the people the value of honey, which is not a luxury but a necessity.

* * *

The matter of beekeepers securing credit from their local bankers is apparently a

matter of concern in other states as well as in Texas. We often hear a beekeeper express much disgust over the fact that his banker will not consider his apiary good security for a loan. Very seldom have we heard of a banker advancing money with which to purchase additional bees, taking the bees as collateral. It is up to the beekeepers to demonstrate that beekeeping is a stable industry and not a fickle speculation. While it is no doubt true that the bankers are too conservative in accepting apiaries as security, the fact still remains that such risks are greater than in many other industries.



THE beekeepers of the Inter-mountain region

AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado

will have to wake up on the container situation. While many have bought their cans, few have enough for their requirements. Should the can-manufacturers be forbidden to sell cans to beekeepers for use in storing extracted honey, we shall be forced into a very serious situation.

Barrels in sufficient quantities are unobtainable; and, even if they were obtainable, the loss from having to store alfalfa honey in barrels would be at least one per cent.

Aikin honey-bags are out of the question, as the large producer has no place to store filled bags until they are granulated solid, and they cannot be piled up until solid. A hard paper-board package might be practicable, but a bag will not do.

The best thing the beekeeper can do is to get all the cans possible and use barrels as a last resort. Many can store several tons in their large tanks, but this will necessitate a hard disagreeable job chopping out the granulated honey.

Honey of the Inter-mountain region should be put in tin cans. The matter might be taken up with the Government to advantage; and if we can secure no cans, the better plan would be to stick to the comb-honey production, so that we can obtain a honey crop in some form.

HOW MUCH HONEY IS HANDLED IN CARLOTS?

It seems to me that the estimate of only ten per cent of the honey crop being handled in carlots is pretty low. The wholesale price is not governed entirely by the carlot shipments. The local carlot shipments have a great influence on the market when they go upon the city markets, as they do in many cases.

Probably ninety per cent of the produc-

tion of the Inter-mountain region is handled in carlots, or goes

upon the wholesale markets; and while I am not so familiar with Texas and California, I do know that a large part of California's crop is handled in carlots, and Texas honey finds its way into the wholesale markets of Texas, Oklahoma, Kansas, and Missouri in large quantities.

If the total production of honey for the United States is around \$20,000,000, the amount of honey going into the wholesale markets is doubtless four to six million.

The Bureau of Markets will doubtless soon be able to give us statistics on the honey shipments of the United States, and then we shall know more about the relation of price as affected by the wholesale market.

HARD TO ERADICATE, BUT EASY TO CURE.

In our experience with European foul brood, we find something to learn every day. It is hard to eradicate but easy to cure. What is meant by that is that an individual apiary can be cleaned up readily, but it is difficult to clean up a district comprising twenty apiaries. Bees and swarms are very elusive. We have them, and we do not have them. At the same time we are not discouraged, for I believe we are making headway. In one apiary of over 100 colonies, 24 were found affected with European foul brood. In this apiary were about 15 colonies that had been requeened last season with Golden Italian stock, several of these being somewhat weak, but not one of these colonies showed any signs of the disease on examination in May.

While it is impossible to keep all colonies strong at all times, it is easier to do so with resistant Italian queens, and the disease can be mastered with good stock and intelligent care.

C. L. W., Illinois.—I learn that some large honey-producers extract before the combs are capped; others say that when two-thirds of the comb surface is capped that it is enough. Still others insist that every cell should be sealed before extracting.

A. A great deal depends on the locality and the source of the honey. Buckwheat honey may be fit to extract sometimes when but few of the combs are capped. But it is far safer to err on the side of having half or two-thirds of the comb surface sealed than to extract honey that is too green. Unripe honey sent to the market does no little damage, not only to the seller of such product, but to those selling fully ripened honey. In some localities it is well enough to extract when two-thirds of the combs are capped over. If one waits till every cell is capped he is liable to force swarming, and at the same time may cut down the crop somewhat.

It should be always borne in mind that unsealed cells may contain fully ripe honey; and in rare instances sealed honey may not always be ripe; but we strongly urge every beginner not to extract until two-thirds of each comb surface is capped over. Better err on the side of having used the uncapping-knife too much than not enough.

G. L. D., New York.—Will I not secure a better price if I sell my honey on commission than sell outright for cash?

A. That depends. If the commission house is reliable it can and often does get the beekeeper a larger price than if he sold at the then cash price; but if the house is not reliable it may make false returns. We have known of several instances where a commission house has sold extracted, say at ten cents, but made returns on the basis of only eight. Unless a producer can trace his honey to the buyer, he cannot know for what his honey actually sells for. As a general proposition it is safer to sell on an actual cash basis; and among reliable houses the practice is becoming more and more common.

E. E. F., Wisconsin.—If I have a bad case of robbing when a colony is nearly overpowered what shall I do?

A. In some cases it may be best to let the robbers finish up the job. If the entrance of the robbed colony is closed entirely, the bees inside may be suffocated while the robbers on the outside will pounce on every other colony in the immediate vicinity. The result is that the trouble is scattered all over the apiary. A far better plan is to put a wire-cloth cage over the robbed colony. At intervals of two or three minutes lift the cage and let the robbers rush in from the outside. In the course of ten or fifteen minutes the robbers will all be trapped in the upper part of the wire cage. These trapped bees should not be released except at an

GLEANED BY ASKING

E. R. Root

outyard. If they are let out at nightfall they will repeat their work the following morning. They had better be killed outright than to be let loose again,

especially if one has nuclei or is attempting to raise queens.

M. M. B., Illinois.—When can one decide that the honey-flow is beginning to wane?

A. If the flow is from clover, two-thirds of the clover-heads will be brown, and the rest will show fairly fresh heads. If the bees at the entrance are tugging at the drones at the entrance, showing that they are unwelcome, and if they show an inclination to rob along about the middle hours of the day, it may be surmised that clover is at or near its end. Some fresh rains, however, may prolong the season.

S. E. G., Pennsylvania.—What makes my bees so cross immediately after the honey-flow, especially from basswood?

A. It may be set down as a rule that bees will be cross immediately following a sudden stoppage of the flow of honey. It does not make any difference whether it is at the close of the honey-flow or whether a hard summer rain has washed the copious supply of nectar out of the blossoms. In the same way, bees will be cross along about ten o'clock after they have been gathering all the honey out of the buckwheat blossoms. They will be fearfully cross when the sun dries the honey-dew or aphid secretion from the leaves of certain shade and forest trees. The dew of the morning softens the saccharine matter; and when the sun dries it down to a hard varnish the bees will often be very cross. In the same way bees will be very cross after robbing if the sweets they are robbing be suddenly cut off.

F. H. B., New York.—Why is it that basswood is so often a failure?

A. No one knows. It very often happens that when clover is almost a failure basswood will come in strong. As a rule it will be the other way. The same causes that operate to make fruit-trees fail some seasons to yield probably operate on basswoods. In most localities basswoods do not yield more than once in two or three years, and sometimes only once in five years.

E. B. P., Pennsylvania.—I have some colonies that are fair, some that are strong, and some that are weak. I wish to produce both comb and extracted honey. How shall I proceed?

A. Use strong colonies for the production of comb honey. Those of fair strength may be used for producing extracted, giving them combs as fast as they will take them. Where a weak one happens to be by the side of a fair one as to strength, the two may be united, moving the united colony to a point midway between where the other two stood. If there is no choice of queens let the bees

eliminate one or the other; but the queen of the weak colony, if she is a poor layer, should be killed; and as a matter of precaution the other queen should be caged for 24 hours before being released.

A weak colony left by itself will be of no value except for increase. By fall it may be built up to a good strong colony; and if there is any fall flow it may be useful in gathering some surplus. But in most localities it will need whatever it can gather after September 1 for winter stores.

G. L. C., Ohio.—Which is worse—European or American foul brood?

A. That depends. Some beekeepers maintain that American is not to be feared, because they can easily control it, while others hold that European is the easier to handle. The last named does not require the destruction of combs, and according to some of our best authorities can usually be cured by re-

queening with vigorous Italian stock. If European starts in a yard, it is liable to take the whole apiary, because it progresses far more rapidly than the American type of the disease; and it may be necessary to requeen the whole apiary before any great measure of relief can be expected. But European is more insidious; and, as Dr. E. F. Phillips, of the Bureau of Entomology, says, it does not fight fair, because sometimes all repressive measures fail for a time. On the other hand, American, if one is careful, can always be cured by shaking on foundation, taking the precaution to see that no diseased honey is scattered around. But when shaking, one must be careful to see that the bees do not swarm out. Perforated zinc should be placed over the entrance to hold the queen in until the swarm is really started in housekeeping.

Of the two diseases, we should fear the American more than the European. It costs



THE BACKLOT BUZZER.

BY J. H. DONAHEY.

Mother says it's all right about the successful beeman having to look at everything from the bees' viewpoint; but what she wants to know is why they can't find some other way to express themselves. She says they just back up and push.

less to treat the European, and some of our best beekeepers, including Dr. C. C. Miller, S. D. House, and many others, feel that the European is easily controlled; and some go even so far as to say it is a blessing in disguise, because it wipes out all the box-hive beekeepers and the slovenly, don't-care class who are continually cutting down prices and demoralizing the industry generally.

The American works the same way; but as long as there is any American in the locality, a healthy yard conducted by an intelligent beekeeper is always in danger of infection. That does not necessarily follow in the case of European.

W. B. C., Missouri.—When bees are loafing out at the front of the entrance, will smoking make them go to work in the supers?

A. Clustering out in this way is usually caused by too contracted an entrance or a hive placed out in the hot sun. The remedy is to enlarge the entrance or place a shade-board on top of the hive or both. The shade should be large enough to cover the hive during the hottest hours of the day. The entrance should not be less than $\frac{7}{8}$ by the width of the hive; and it may be necessary, in case of strong colonies, to lift the hive off the bottom-board and place four $\frac{7}{8}$ blocks on each corner and put the hive up on the blocks. This will usually stop all loafing. We would not advise lifting the hive up in this way unless it is at least two-story in size. A $\frac{7}{8}$ entrance by the width of the hive is usually enough for a one-story colony.

Ordinarily, smoking the bees back into the hive thru a small or limited entrance is only a temporary expedient. It does little or no good. The real remedy lies in more ventilation or shade, or both.

A. B. C., Corinth, N. Y.—How can one qualify himself for a bee inspector? What are the qualifications necessary? Does one have to be a college graduate?

A. One does not need to be a college graduate in order to be a bee inspector. He should, however, be a good practical beekeeper and be thoroly familiar with the various forms of bee diseases. If he can go along with a bee inspector on a regular trip he will get a great deal of valuable information and experience.

It is important that a bee inspector know the subject of practical beekeeping pretty thoroly, because one of his principal duties will be to instruct beekeepers on how to keep bees as well as how to prevent disease from getting started among the bees.

G. J. S., Ontario.—We have been trying to keep a few bees on our farm situated on the south shore of Lake Ontario. We have had rather poor results in building up during summer, and also in wintering which I lay to weakness. I have been wondering if our location so near the lake is detrimental.

A. Bees do not do quite so well close to a body of water as a few hundred feet back. When they are located next to one of the big lakes the cold wind off the water is apt to prevent the bees from building up as they should. It is not at all surprising that you

should have trouble in building up your colonies in the spring if you are right on the lake shore. You could, perhaps, improve matters by moving your bees back a few hundred feet, and slightly back of shrubbery or a clump of woods—anything that will break up the fierce piercing wind right off the lake. We have had other reports of people who had difficulty in building up bees right next to a large body of water, and your experience is not unusual.

A. L. H., Pennsylvania.—How can I know when it is time to put on extra supers for comb honey?

A. The usual rule is when the bees begin to whiten the tops of the combs and to store a little honey in the brood-nest. But sometimes this may be too late, and swarming may be induced in the mean time. It is best, therefore, to put on supers at just about the time the honey-flow begins to open up.

B. C. L., Michigan.—How may I know when to put on supers for extracting?

A. When the main honey-flow begins to open up, and perhaps a little before, a super of extracting-combs should be put on. It is better to be a little too soon than a little too late. Delay may force swarming; and if that once gets started in the yard it will be difficult to hold it in check. Very populous colonies should be given room in any case.



Question and Answer

BY GRACE ALLEN

(To Dr. C. C. Miller, who has answered such questions so often, so patiently, and so wisely.)

THE QUESTION

"You who are full of years, and wise,
And see with such understanding eyes,
Answer me this: Shall I, who am young,
Work where songs of birds are sung,
Consort with seasons and winds and trees
And murmurous incomprehensible bees,
Or match my youth with the task of the town
In a game where the players go up and down,
Where figures in columns and figures across
Spell fortune and failure and increase and loss?
Shall I answer the call of the counting-room
Or the call of the bees on the clover bloom?
Oh! where lies my profit in years to come,
In ledgers that balance or bees that hum?"

THE ANSWER

"You who are young, with eyes like flame,
In love with a song, lured by a game,
Longing for wealth—your own true heart
Must tell you at last the better part.
But I who am older say this to you:
Do the thing that you love to do.
Thus work is not drudgery, work is delight,
With zest thru the daytime and rest thru the night.
Gold, to me, is not truer wealth
Than peace and happiness, love and health,
With wonder and worship and simple ways
And a sense of God thru all the days.
But ask your own heart; this is how it looks
To a keeper of bees, not a keeper of books."

FROM reports reaching this office from all parts of the United States and Canada we should judge that the white-clover

prospect is generally very fair. Ontario, Michigan, and Wisconsin send word of some excellent clover conditions. A few localities report bad clover conditions. From all parts of the country comes word of a season generally a month late, and in many places bees in an almost starving condition at a time of year when they are generally providing plenty of food for themselves. Cool winds and generally unfavorable weather conditions have been the almost universal complaint from the Pacific Coast to New England up to the middle of June. California, however, broke into the hot-weather column early in the month, and Florida and the southern states report extracting having begun in many cases about June 1.

The month of May, 1917, won the unenviable distinction of being the coldest May in Ohio since the establishment of the United States Weather Bureau in 1871. The temperature averaged from 10 to 20 degrees below the seasonal normal. So Ohio beekeepers are in about the same backward condition as is all the rest of the country.

Mr. Elmer Hutchinson, raspberry-honey producer at Lake City, Mich., writes under date of May 25 that he had saved all his bees from the forest fires prevailing in that region, but that so many of the berry bushes had been burned that many of his bees would have to be moved to avail them of the scattered patches of berries left unburned. On that date, May 25, Mr. Hutchinson reported a foot of snow covering the ground in that region.

In Massachusetts a number of beekeepers' meetings have been held under direction of Burton N. Gates, of the State Agricultural College, to promote an increase of honey production in view of war exigencies. At these meetings a general survey of the current beekeeping situation was presented. Emphasis was laid upon the utilization of the bees at present available rather than to recommend the increase of apiaries. It was also explained that the apiaries where practicable should be utilized for extracted-honey production, as, colony for colony, at



least double the number of pounds of honey could thus be turned out. Particularly was it recommended that what honey may be pro-

duced this year be procured with the idea of supplying the home demands. Beekeepers were advised to place their orders for supplies, including particularly containers for packing their honey in the fall, as soon as possible. Under the authority of the Massachusetts State Board of Agriculture local apiary advisors, or agents of the board, were to be appointed. A limited number of these appointments are made, which appointees will serve to afford information to their neighbor beekeepers and as informants to the office in Amherst. It is expected that this system will greatly facilitate the help which the state offers to the beekeepers. A census of honey-extractors has been made. Practically all extractors are now listed in Amherst so that the beekeepers of the state who desire to extract a little honey, but who do not have the facilities, upon applying to the office in Amherst can learn of the nearest available extractor. Nearly every beekeeper who owns an extractor has kindly offered the use of it, in the emergency, to his neighbor beekeepers. The interest shown by those who attended the meetings has been keen. The beekeepers show their willingness to co-operate, and signify their intention to do their best to produce more honey.

It has been arranged to hold the annual beekeepers' school under the auspices of the Massachusetts Agricultural College in Dalton, in the heart of the Berkshires, July 11 to 14 inclusive. All persons interested are invited to attend. Copies of the program will be mailed upon request. There is no fee nor expense attached to attending the school. The first day is to be beginners' day. The second day will deal with the problems of swarming; measures of swarm control; the making of increase; comb-honey production; queens and queen-rearing. The third day is extracted-honey-production day. The fourth day is a general field day, announced by the Berkshire County Beekeepers' Association.

Mr. L. A. Syverud, state bee inspector of South Dakota, has moved from Troy in that state to Yankton, so as to perform better his duties as inspector.

SINCE there has been such a call, from our good President all the way down the list, for making provision for a possible famine I have been reminded of that wonderful chapter in Genesis where Joseph warned the king, who appointed officers over the land to take up the fifth part of the crops during

the seven plenteous years. Considering all of these things I have reviewed the many hobbies of mine that I have ridden during the past seventy years; and I feel glad and thankful when I remember that almost every one of these hobbies was in the line of providing good and wholesome food for the hungry multitude. When I became enthusiastic about the possibilities of bee culture I said that honey, like butter and eggs, should not only be offered for sale in every corner grocery, but it should also be on sale like butter, cheese, and eggs, *every day in the year*. Well, my prediction has not as yet exactly come to pass; but just now as I write on this 6th day of June, not only the Department of Agriculture but every farm paper, and many periodicals not devoted to farming, are urging that bees enough be kept to gather the honey that goes to waste in such unlimited profusion almost every season. And this comes about just now particularly because of the possible scarcity of sugar in the near future.

While I am talking about honey I am reminded that Mr. Calvert has just said that there is already difficulty about getting glass and tin containers to hold the honey. Well, I have always urged, and I urge more particularly just now, that the whole wide world should unite in making the *shortest possible cut* between producer and consumer. During these war times there is a big excuse for the middleman to put prices away up, and the poor consumer has no means of telling whether there is an honest reason for the big advance or no reason at all except to satisfy the greed of the middlemen.

I said to Mr. Calvert, "Look here, John, why not advise beekeepers to carry their honey around the neighborhood in bulk and ask the good women to bring out a picher



And Joseph went out from the presence of Pharaoh, and went throughout all the land of Egypt.

And Joseph gathered corn as the sand of the sea, very much, until he left numbering; for it was without number.—GEN. 41: 46, 49.

And God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.—GEN. 1:28.

or fruit-jar and get what they require?"

Mr. Calvert replied that the above plan was always safe and honest, and would be a tremendous saving in the end.

Now, friends, *why* cannot the producer load up his butter and eggs, and *honey*, and carry them around to the consumers?

Yes, it takes

time, I know; but it will be a tremendously big saving by cutting off this business of robbing both producer and consumer by the cheats that are all the time going on in the transfer of these necessities of life from the producer to the consumer? Just another thing right here:

If the man who carries around his honey, butter, and eggs is a good man (I should like to say a follower of the Lord Jesus Christ) he will very soon establish friendly relations with all his patrons. They will learn to love him; and he will learn to love them; and this spirit of charity and kindness will grow up on both sides so a misunderstanding or a jangle about prices will be almost an impossibility.

Well, in thinking over my various hobbies, and in running over hastily yesterday's *Plain Dealer* I came on to something that gave me quite a "jolt." Here it is:

All the inhabitants of an Indiana village turned out with pitchforks the other day to shovel in thousands of German carp that were blocking the river. That's carrying the war into the interior, all right!

Our older readers will remember that fish culture, especially growing German carp, was at one time a hobby of mine; and after reading the clipping I turned to chapter 41 of the book "How to be Happy," etc., that was lying on my table. If you have the book, perhaps you had better turn over to that chapter. A good friend of mine, who was an enthusiastic beekeeper also, became interested in growing German carp; and he succeeded so well that he advertised and sold little fishes to start a carp-pond for only \$1.25 a hundred. I paid him a visit and looked over his ponds, one below another, between the hills of Medina Co.; and I do not think I ever spent a happier hour. It happened so many years ago that Huber, who went along, was but a small boy.

Well, my impression is there was *no failure* in growing an abundance of German carp at very small expense; but the general decision was that the quality of the fish was not quite equal to the food fishes on the market. But my opinion is just now that if these fish were fed on grain, like cattle, swine, and poultry, we should find that "corn-fed" fish is very much like corn-fed beef, etc. If German carp are now so plentiful, as mentioned in the clipping above, that they have to be shoveled away by the thousands, we can certainly use them to prevent starvation if such a thing should ever happen in our own country.

Well, during all these hobbies of mine in years past, every little while something has come up in the line of poultry-keeping, high-pressure gardening, etc., to stir the world. You may remember how enthusiastic I was about Indian Runner ducks that laid such a tremendous lot of great big eggs, and went down in the canal and almost boarded themselves. Well, it was with duck eggs as with German carp. When fresh hens' eggs could be bought for 20 to 25 cents a dozen, nobody wanted the duck eggs at *any* price; but just now I think hungry people would be very glad to get the duck eggs. And, by the way, I would just as soon have duck eggs for myself as hens' eggs, especially if the ducks have plenty of corn any time during the day, when they want a little to make up a "balanced ration."

I wonder if you ever thought of it, my good friend, that when there comes a scarcity of some particular article of food that sends the price away up, *then* the busy world pays a lot of attention to improved methods and short cuts in putting on the market this special commodity. Potatoes we are having on our table now, at least twice a day, cost \$1.20 a peck; and this extravagant price is turning the attention, I think I might almost say of the whole wide world to the possibilities of intensive agriculture along the line of growing potatoes; and it is going to do a lot of good; for these improved methods that are largely brought out by such high prices will often be such a tremendous improvement that they will not be entirely dropped, even if potatoes should go away down again; for in this present age every improvement, especially in the line of agriculture, very soon gets into print.

The other evening, by some misunderstanding there was no leader for our prayer-meeting. After the audience had waited for about fifteen minutes somebody suggested that I should lead. I remarked that, not having expected anything of the kind,

of course I was unprepared; but until the leader came I would take that part of the Lord's prayer which reads: "Give us this day our daily bread;" and I reminded the good friends that before this war is ended we as a nation, and as a people, might have more reason to put emphasis on that part of the Lord's prayer than we ever did before. When the meeting was about half over, a good brother suggested that what the Savior said after the feast of the loaves and fishes, "Gather up the fragments that nothing be lost," would come in very appropriately right here.

The Department of Agriculture at Washington has been telling us that the good wholesome food thrown into the slop-pails right along all over the United States amounts to something like 700 millions of dollars a year. And this reminds me that one summer I took a trip up to a pleasure resort in northern Michigan. A beekeeper had located not far from one of the great fashionable hotels; and, as is often the case, one of his side lines was poultry; and he got the privilege of taking the waste from the dining-tables to feed his chickens. But as there was very much more than the chickens could use he branched off into the pig business; and when I was there he had a great bunch of pigs, little and big; but as the season got up to its height the refuse from the tables got to be so large that the pigs could not use it all, and the stuff accumulated had begun to decay so as to make a bad smell for the whole neighborhood. Now, this refuse from the tables was composed of the richest and most expensive food that money can buy. I think our friend quit the business and let somebody else take the garbage as a gift if he would only haul it away.

When traveling I often keep an eye out in regard to this matter of waste around hotels, restaurants, and sometimes in private families. I have often remonstrated; but generally the excuse is to put the blame upon the average hired girl; and one of the troubles is the difficulty of getting competent hired girls (and they know it); and if the good wife ventures to find any fault she is very apt to hear, "Well, if you do not like my way of doing, perhaps you had better try somebody else."

Now this whole thing indicates a wrong state of affairs. Many times the mothers and the children would be far better off if they did their own work instead of having hired help. And, by the way, this same hired girl, when she gets married to a man of small salary, will be obliged to learn, by "gathering up the fragments."

A great deal of the fault comes about be-

cause of the way the children are brought up. They are permitted to be wasteful. Years ago, in that little log house in the woods (where I was born) my older brother dropped part of a slice of bread on the well-scrubbed floor of the kitchen. The good mother assured him it was not hurt at all by falling on the floor (battered side up); but, like many another child, my brother was contrary. My mother finally told him that he would have to eat that piece of bread, and that he could not have another bit of food until he did eat it. He got into a sulk and went without his dinner. At supper time she offered him the same piece of bread; but he was contrary and stubborn still. I cannot exactly remember, but he finally became so hungry that he was willing to eat the bread, after the good mother had volunteered to eat half of it

herself. Bless the memory of that good old mother! She knew that the settlement of that question would have a marked effect on the *character* of the four other children who were looking on. We want mothers of that stripe just now, especially while this wicked war confronts us.

In conclusion, dear friends, shall we not *all* use that part of that wonderful prayer, "Give us this day our daily bread"? and shall we not remember, too, that to be consistent we must also remember that other injunction about gathering up the fragments; and let us, like Joseph, improve this growing season, and let the product of our farms and gardens be carefully *preserved* for the time of need; and let us not forget the *fishes of the sea*, and the *fowls of the air*, that the great Father in his loving kindness has provided for us.



HIGH - PRESSURE GARDENING

POTATO-GROWING IN FLORIDA; OVER A MILLION DOLLARS PAID FOR FLORIDA-GROWN POTATOES AT ONE SHIPPING-POINT.

Just as soon as the price of potatoes began to run away up last fall, I declared, as you may remember, that we would have to depend on Florida to help us out; and to demonstrate that potatoes could be grown there at a profit all winter long I secured two crops from the same patch of land in just one winter. Below is a clipping from the Jacksonville *Times-Union* that indicates what *has* been done, but not what it is *possible* to do while we up here in the North are frozen up.

HASTINGS POTATO HARVEST EXCEEDS ALL EXPECTATIONS.

FOURTEEN HUNDRED CARS HAVE ALREADY MOVED OUT; SHIPMENTS AVERAGE 150 CARS DAILY.

Hastings, May 5.—Hastings, with the potato-shipping season at its height, is probably the busiest little town in the United States. The crop has exceeded the wildest expectations, and sixty-barrel averages are common, and many growers have exceeded this average considerably. The crop has so far exceeded all anticipations that enough barrels to hold the crop cannot be procured, and much of the stock is being shipped in hampers, crates, and sacks. The supply of these is hardly adequate to meet the demand, and the entire output of bag-factories is being shipped to Hastings and is being snapped up immediately upon arrival.

Everybody is busy. The days are not long enough, and work is kept up far into the night. In many instances hauling is being done long after dark.

One hundred and thirty cars per day is about the average shipment, and at this writing more than fourteen hundred cars have been shipped. It is estimated that about half the crop has been moved.

Dozens of motor trucks have been purchased by the growers to move the crop to the station, and many more trucks from Jacksonville, St. Augustine, Daytona, and other points are here with every one doing all the business he can handle. Notwithstanding the tremendous output of "spuds" the prices continue high, \$7.50 per 11-peck barrel and \$6.50 per 150-lb. sack for number ones, f. o. b. Hastings being the prevailing price.

The Bank of Hastings has more than doubled its force, but still work is kept up until midnight or later. The total deposits of the bank have reached the one-million mark.

Last Saturday more than \$40,000 was paid out for payrolls and other expenses incidental to the harvesting of the crop. In common with everything else the postoffice is almost overwhelmed with business, particularly on Saturday afternoons, after the field hands have been paid.

It is then almost impossible to get at the delivery and money-order windows. The storekeepers are sharing in the general prosperity, and have all been compelled to increase their forces.

The potato is king, and all forms of activity not connected directly or indirectly with the potato deal are practically at a standstill. Sleeping room is at a premium, and in some cases tents have been resorted to, to accommodate the overflow!

POTATO - GROWING IN FLORIDA, SOMETHING MORE ABOUT IT.

We clip the following from the *Manatee River Journal*. Please notice while you read it the amounts mentioned were grown over a small part of Florida.

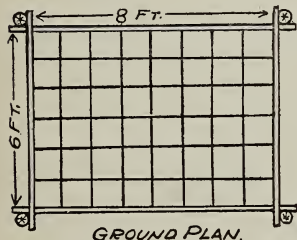
The potato growers of the Hastings district, including Elkton, Spuds, Hastings, Byrd, Orange Mills, and other points to East Palatka have practically finished digging and selling the vast crop of spuds, there remaining only a few pickups which, after this date, will be handled in carload lots, and the great potato specials will now be discontinued over the Florida East Coast railway. While complete crop

statistics are not yet obtainable, it is known that the total yield will exceed 3000 solid carloads, which means fully 570,000 barrels, or over \$4,000,000 net to the growers. This vast sum has been dug out of about 11,000 acres.

HIGH-PRESSURE GARDENING WITH A VENGEANCE; FORTY BUSHELS OF POTATOES ON A PLOT 6 X 8 FEET SQUARE.

Some time during May I found in our county paper, the *Medina Gazette*, an article telling how the above feat was accomplished. Shortly afterward clippings were sent me by many friends. These clippings were from different periodicals describing the same thing. Most of the accounts were from some of our *Sunday dailies*. After some trouble I ascertained the man who claimed he had performed the above feat was R. E. Hendricks. I applied to him at once for anything he might have in print describing the invention. Below is his reply:

Mr. Root:—I am out of booklets now, but will try to describe to you my plan. You can build a pen 6 feet wide and 6 high, and as long as you wish. I think 6 feet wide is best. The first diagram represents the ground plan, 6 x 8 feet, 35 hills of potatoes to each 6 inches in height of earth. Plant a potato eye on each one of the cross-lines, 35 in each layer of dirt as shown above; then put a little rotten

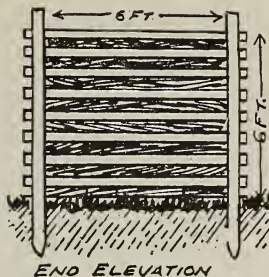


GROUND PLAN.

manure on the potatoes; then water each layer well as fast as you plant them. The first row inside of the pen must be 8 inches inside the pen line; then space and mark off and plant and repeat, making each layer of dirt 6 inches deep (or high), one on top of the other. The mark across the upper part of the side elevation is known as a "moist-tester."

If you use boards for the pen, leave a three-inch space between each two rows of boards. Build the pen as you plant, and fill the three-inch space with hay or straw, and vines will grow out thru them all around the pen and at top. Use wires crosswise thru the pen to keep the sides from springing.

The moist-tester may be made out of a pole about 4 inches in diameter and 3 feet long. Place it in one side of the pen about two feet above ground. After the potatoes have been planted three weeks, pull the tester out and run your hand in and examine the dirt as to moisture, then repeat one or two times after this. By so doing you can tell how much water to use on the pen. Watch it closely,



SIDE ELEVATION

and keep the dirt in proper condition. If there is too much rain, cover the pen up. Thanking you for copy of your journal, and wishing you success, I hope to hear from you again.

R. E. HENDRICKS.
2536 Elmwood,
Kansas City, Mo.

Please notice in the above he says nothing about the forty or more bushels. Among the clippings from the different periodicals sent me is one from the *San Francisco Bulletin*. This one clipping describes the whole matter more in detail than the others, and so I give it entire:

42 BUSHELS OF POTATOES GROWN ON EIGHT-FOOT PLOT; MISSOURI MAN'S METHOD PROMISES TO REVOLUTIONIZE THE INDUSTRY.

Forty-two bushels of potatoes in the season of 1916 from a plot of ground only eight feet square, or an equivalent of over 28,000 bushels to the acre of ground space used, was the astonishing feat of R. E. Hendricks, a resident of Kansas City, Mo.

This sensational achievement was made possible by the use of an entirely new and original method which, when generally introduced, promises not only to revolutionize the potato-growing industry thruout the world, but to solve the problem of an unfailing source of cheap food supply for the nations of the earth.

The story of Hendrick's successful experiments in potato-growing, covering a period of three years, sounds more like a fairy tale than a recital of facts, yet it is so unique and interesting that it at once compels attention. Expert gardeners and farmers who have looked into the plan carefully pronounced it not only practical, but call the originator the greatest plant wizard of the age, and declare that he has anything in plant culture and intensive agriculture beaten by a wide margin.

Like all great discoveries, Hendricks' method of raising potatoes is founded on such simple elemental principles that one wonders "why some one didn't think of it before." He had often watched the potato-pile in the cellar-bin, which every spring sent out its shoots thru every possible crack and crevice. Sometimes these sprouts would crawl out along the floor a distance of seven feet in order to reach the light. From this beginning he conceived the idea that if this pile were removed out into the open and given soil and fertilizer, with proper conditions of light and moisture, the potatoes would grow and reproduce their kind.

IN A POTATO-PEN.

Three years ago he built what he called a "potato-pen," which was nothing more nor less than a huge potato-hill, the sides of which were supported by a loosely constructed enclosure, built after the fashion of an old rail fence. Within this enclosure, only eight by eight feet in size, he planted his potatoes in thin layers of dirt and manure, piling one layer on another until the pen was eight feet high. The potato-pen became a mound of green.

He had found that his potatoes not only grew better than they did in the cellar, but that at digging time he was able to harvest 40 bushels of as fine potatoes as are grown anywhere. The following year he secured 32 bushels in the same-sized pen, and last year the astonishing total of 42 bushels.

Up to this time Hendricks had conducted his ex-

periments unknown to but a few of his most intimate associates; but owing to the present food shortage, and the nation-wide campaign to speed up food production, he decided to give up his discovery for the free use of people everywhere.

The details of the construction and management of these potato-pens, as described by Hendricks, outline a plan by which any one having access to a plot of ground no larger than a flower-bed can raise all the potatoes needed for an average family for a whole year. The potato-pens may be built eight feet wide by any length, just so they are built strong enough to keep the sides from spreading. Almost any kind of good stout material can be used. If light lumber or boards are used the pen may be braced thru the center with wires. Rich earth and well-rotted manure must be on hand in sufficient quantities to fill the pen to the top.

HOW THE PEN IS BUILT.

Hendricks' potato-pen is built six feet by eight feet, inside measurement, and six feet high.

The pen is built as each layer is placed and planted. You can use 1 x 6-inch boards for the ends and sides, leaving 2½-inch space between the boards for the potato sprouts to come thru. Start the pen with a six-inch layer of dirt. Then mark off the plat a foot apart each way, allowing six inches of space for dirt all around between the outer row of potatoes and the inside of the pen. Plant a potato seed at every cross-line or intersection of the plat, 35 hills to the layer of dirt. Then put an inch or two of well-rotted manure over the potatoes and sprinkle well with water. Then lay six inches more of dirt and mark off as before; plant, manure, and water again. Repeat this operation with enough layers to fill the pen to the top. To keep the dirt from falling out of the pen as the layers are placed, draw up old straw or hay against the cracks or crevices.

As the pen rises, place on the fourth layer of dirt in the center of one side, about two feet above the ground, a "moist tester." This is made of any piece of timber about the size of the arm, a piece of 4 x 4-inch by three feet long, placed so it will protrude from the pen about a foot. After the potatoes have been planted three weeks loosen the tester, pull out and run your hand in to determine the moisture. By so doing you will know how much water to use on the pen. After the tester has been once removed this can be repeated once or twice a week. Watch the tester and keep the dirt in proper condition.

CONTROL OF MOISTURE.

The pen should be near a water supply so that it can be well watered during dry weather. It should be watered from the top about twice a week unless rainfall is sufficient. The "moist tester" will always enable the grower to determine the proper moisture conditions. The top layer of dirt should be sloped gently toward the center, so the ground will absorb and not shed rain, but care should be taken that mud be prevented from forming on top and baking to a crust. When the earth is dry the mound should be sprinkled on the top and sides. The potato-vines will grow to the top and sides of the pen (the nearest way to the light), emerging thru the crevices and concealing the timbers with a coat of green. When the potatoes are matured the pen may be taken down, the potatoes rolled out of the thin covering with a rake, and the material, dirt, and manure saved and used again and again.

LATE PLANTING POSSIBLE.

Potato-pens may be started as early and as late as possible, giving potatoes 90 days to mature, except the early ones. The usual time of planting potatoes in the North is from March to June; but under this method the potatoes may be planted much later than is possible under open field conditions, where the factor of hot dry weather must always be taken into consideration.

With irrigation and every possible condition of good potato-growing — moisture, ventilation, and drainage—always under his control, the grower is practically certain of his crop.

In his experiments, Hendricks used the Red River Early Ohios for seed, cutting two eyes to a good-sized piece. This year he is experimenting with other adaptations of his plan, and expects to have some interesting announcements to make by next November. Hendricks is backed in his work by a good wife, and his neighbors of 20 years' standing vouch for his honesty and integrity.

The possibilities of this new method of raising potatoes, in the saving of labor and of land, are amazing to contemplate. When outside conditions are unfavorable the production can be carried on successfully under glass, and shipping from warmer climes made unnecessary. With such a cheap source of food supply within reach of all the people of the earth the specter of famine and the day of high-priced foods will become a thing of the past.—*San Francisco Bulletin*.

The cuts shown will enable one to understand better how the pen is built.

Now, the whole thing (especially before I got full details as above) seemed to be so much of an impossibility that I submitted it to our Ohio Experiment Station, and below is Prof. Thorne's letter:

OHIO AGRICULTURAL EXPERIMENT STATION.

My dear Mr. Root:—Mr. Green suggests that the "potato-pen" lacks just one thing—an oven under it so that the potatoes will come out ready baked.

Of course, some potatoes might be grown on the outside of such a pen. Do you remember the strawberry-barrel that was advertised about the time you and I began writing about bees? But the seed planted in the interior would rot, just as it would if buried two or three feet under ground; and when it comes to stripping off a quarter acre or such a matter to get good soil to fill the pen, and carrying the water it would require to keep the crop growing, I beg to be excused. I prefer to grow the potatoes on the soil where it lies.

CHAS. E. THORNE, Director.

Wooster, Ohio, June 6.

After a pretty full investigation I am not able to discover that anybody gets any profit out of it. I have once given my opinion in print that 4 bushels to the pen would be perhaps nearer right than 40 bushels; but a good friend of mine who was connected with our Ohio Experiment Station in years past has faith to believe that 10 bushels might be taken by means of such an arrangement. There are, perhaps, half a dozen such potato-pens already started in our town of Medina; and nobody knows how many of them have been built and planted thruout the land as the result of this newspaper sensational clipping. The New York Coal Co. sent a telegram to Mr. Hendricks in regard to this enormous yield, and I clip the result from the coal company's circular as follows:

Question 1. How many years have you built these potato-pens?

Ans. Three years with success.

Question 2. What is the average annual output of potatoes in one of these pens?

Ans. In a pen 8x8x8 ft. I took out 42 bushels

first year, 34 bushels the second year, and 42½ bushels the third year.

Well, I was not satisfied even then, and so I sent a postal card to a beekeeper in Kansas City, Mo., a good reliable man, and asked him for a brief report which I could use before this journal goes out. Below is his reply:

In accordance with your request I made a trip to R. E. Hendricks, and will report more fully on the potatoes about August 1, this being the first trial in Missouri. About 40 years ago, in North Carolina, Mr. H. tried it. G. P. STARK.

Kansas City, June 14.

As we go to press there is some mystery in regard to this whole matter. Everybody reading the newspaper clippings took it for granted that Mr. Hendricks' wonderful results were made at his home in Missouri during the past three years. In fact, you will notice on p. 558 the statement that he succeeded in getting 42½ bushels (worth today, here in Medina, \$204.00) during 1916, and he gives as a reason why some of his near neighbors knew nothing about it was that he gave a promise of secrecy to

the man who originated the plan.* With the present high price of potatoes, no doubt such a plan will pay.

The concluding paragraph of the long clipping I have given above suggests growing potatoes under glass; and this in turn suggests the idea to me that, should a frost come, either in the spring or fall, it would not be a difficult matter to protect the potatoes by means of blankets or something similar to a tent. I hope good will come of it, even if we do not get "40 bushels" from a bed not much larger than an ordinary dining-table. In the *Youth's Companion* for April 19 we found a picture and description of a sort of mound made with sides sufficiently sloping so potatoes can be grown down the sides as well as on top. This is, no doubt, possible; but all such arrangements will require an abundance of fertilizers, either well-rotted stable manure or chemical, and the best of soil. As soon as any of the friends can furnish me reliable information in regard to the result of this potato-pen I shall be very glad to get it.



HEALTH NOTES

ALFALFA AND SWEET CLOVER TO "REDUCE THE HIGH COST OF LIVING."

A single paragraph of a letter that I now hold in my hand has taken a mighty hold on me. Read it and you will see why:

Mr. A. I. Root:—My object in writing to you is to call your attention to a substantial milepost in the high cost of living—that is, to the new trick your friend Alfalfa has played on us out here. We find it makes the finest greens of almost anything we have ever tried. Just pick the tender ends of the plant and cook them like any other good greens with hog's jowl or otherwise to suit, and you will not want anything better along that line. It beats poke and many other kinds of greens people use in this country, and is as good as if not better than, mustard or turnip greens, and (I will guess) more nutritious. Any way, try it and report.

Morristown, Tenn., April 9. J. J. KOGER.

After reading the above I went out in the garden and cut quite a bundle of shoots of alfalfa, just about a foot high, and asked Mrs. Root to cook them like spinach. She objected to the weedy stalk, but I told her they were all right. Well, like our friend in the above I decided alfalfa really does make the finest kind of greens; but Mrs. Root strongly objected to the stalks and stems; so the next time I just stripped off the leaves along with the tender "ends of the plant," as mentioned in the above,

and they were just fine. When I was in California many of the friends there told me they kept their cows and horses in good condition with just alfalfa and nothing else—no grain of any sort; and I think (of course without an extended trial) that alfalfa cooked as above would largely take the place of corn, wheat, or oats for human food.

After testing the alfalfa it occurred to me that the rank shoots of sweet clover growing close by would make good greens in a like manner, altho I was pretty sure beforehand the bitter taste of the coumarin might be an objection until we "acquired the habit," just as the cows and horses object to it at first. Well, Mrs. Root did object right away to the strong clover taste; but I ate the whole dishful without a bit of trouble; and I am not sure but I shall eventually get to like the sweet-clover taste just as the horses and cattle do.

Well, now, dear friends, if our grains get to be so high-priced that we cannot afford to buy them, especially wheat, let us have some alfalfa or sweet clover growing near

*I clip as follows from the coal company's circular: Claims he promised man from whom he got idea years ago to keep it secret, and that may account for fact neighbors reached by us by telephone had never seen pen in actual operation.

by, and make another and perhaps a far more important "short cut from producer to consumer." Very likely alfalfa and

sweet clover will require that we select the tender shoots when the plant makes its first start in the spring.



TEMPERANCE

NOT ONLY BOOZE BUT CIGARETTES.

It affords me great pleasure to find the clipping below in the *Country Gentleman*, particularly because they not only recommend using our ground for good and useful purposes, but for using the ground also where we have been growing tobacco for something that builds up humanity instead of tearing it down.

EXIT J. BARLEYCORN AND L. NICOTINE.

The movement to increase food crops may appear to be inconsistent with the policy of maintaining fertility by keeping down to the minimum the sales of grain from the farm. We have been urging farmers not to sell grain, but to conserve the fertility in it by feeding it to livestock as far as possible. In this year of unusual need, however, it would seem wise to draw upon our savings fund, and, for one year at least, grow grains principally for market. The shortage in the number of hogs and beef cattle will make more grain available for market. The proposal to close the breweries in order to conserve for a food reserve the grain that they would use is also timely. In wartime John Barleycorn is a poor ally.

Farmers in the Southern States are being advised to plant food crops in addition to cotton. Tho we must supply the world's needs for cotton goods, Southern farms should not overlook the Feed-Yourself idea.

It wouldn't be a bad idea if more tobacco-growers agreed with the Wisconsin farmer who wrote to his experiment station that he was going to put his tobacco lands into grain because he felt it his duty to grow crops for food.

In an emergency like this it is worth while to seat John Barleycorn on the toboggan with My Lady Nicotine and give them a good swift push!

"ONE OF THE BLACKEST SPOTS ON OUR AMERICAN GOVERNMENT."

The clipping below is from the *Cleveland Plain Dealer* in regard to a sermon preached by Billy Sunday in New York:

"I'll live, I hope, to preach the funeral oration over booze in the United States. But if I die before that time I guess the brewers and distillers will run special excursion trains to my funeral—they'll be so glad I'm out of their way."

The evangelist quoted statistics to prove the superiority of conditions in the states which have prohibition. For instance:

"Seventy-five per cent of our idiots came from intemperate parents. There are more insane people in the United States than students in the universities and colleges. In Kansas there are eighty-one counties without an insane man or woman.

"There are fifty-four counties that have no feeble-minded. Eighty per cent of the paupers are whisky-made paupers. In Kansas there is only one pauper to every 3000 of the population. There are thirty-eight counties without a pauper; there are

eighteen counties which do not even own a farm for the poor; there are only 600 paupers in the state.

"Ninety per cent of our adult criminals are drinking men, and committed their crimes while under the influence of booze.

"In 1914 there were sixty-five counties in Kansas with no prisoners in their jails. In some counties they have not called a grand jury to try a charge in ten years.

"The people have over \$200,000,000 on deposit in the banks. The death rate is the smallest in the world, seven out of every 1000 of the population.

"In Massachusetts in ten years the yearly average of crime has been 32,639 cases, and 31,978 have been caused by drink. The *Chicago Tribune* kept track of the number of murders committed in the saloons in ten years. The number was 53,436.

"The saloon is the appalling source of misery, pauperism, and crime. It is the source of three-fourths of all the crime, thus it is the source of three-fourths of all the taxation necessary to prosecute the criminals and care for them after they are in prison. To license such an incarnate fiend of hell is one of the blackest spots on the American government."

I wish to call particular attention to the closing sentence in the clipping above. It has been my opinion for a long while that one of the main reasons, if not *the* reason, that God does not hear the prayers of his people and give us peace is because of the awful inconsistency of having our nation in partnership with this "incarnate fiend of hell," as Billy Sunday terms the traffic.

GIVING GRAIN TO THE CHICKENS INSTEAD OF LETTING THE BREWERS HAVE IT.

The booze business seems to be getting it from all directions just now. The clipping below comes from the *American Poultry Journal*:

The grain now used annually in the United States for the manufacture of "booze," if used in poultry husbandry, could, in six months, be made to produce not less than five hundred million pounds of wholesome poultry meat or seven billion two hundred million eggs. Think that over next time you are sipping up beer or sipping cocktails, while discussing the food situation. Also, consider the improvement in our poultry shows if the "booze annex" were cut out.

I hope the government will stop the making of beer and whisky, at least during the war. What folly it is to use millions of bushels of grain in the making of stuff which brings nothing but misery and sorrow and suffering into the world! It looks mightily inconsistent to urge us to raise more grain and at the same time allow it to be used in the manufacture of intoxicating liquors.

BREAD OR BOOZE—WHICH SHALL IT BE?

Below is what the *Rural New-Yorker*

says:

This proposition of saving for bread-making the grain now used in making intoxicating liquor has taken right hold of the public. Congress will undoubtedly frame some sort of law for saving this waste. Why not? Can any one give a single economic reason why, when a good share of the world is worrying over the future food supply, great quantities of bread-making material should be made into "booze"? The liquor-dealers usually say that temperance advocates are fanatics with unreasonable arguments. Yet, what could be more reasonable than the economic argument for the use of grain for bread-making with famine in sight?

"BREAD WE MUST HAVE, NOT WHISKY, TO WIN THIS WAR."

From the *Methodist Temperance Board* we clip the following, which to me is an excellent example of boiled-down common sense. One thing, and only one, is needful.

Senators talk about wanting a thoro understanding of the matter. There is nothing to understand except one thing; and that is, that bread will help us win this war more than whisky. * * * We must have bread to win the war, but do not have to have whisky to win. That is all there is to it.—Senator H. L. Myers, of Montana.



WHO'S WHO IN APICULTURE

State	Beekeeping taught in Agr. College	Net Weight Law?	Foul- brood Law?	State Inspector or Deputy Name Address	Sec. or Pres. State Ass'n Name Address
Alabama	Yes	Yes	Yes	J. P. Ivy, Phoenix.....	Geo. M. Frizzell, Tempe
Arizona					J. L. Pelham, Hutchinson
Arkansas					F. Fay Lewis, (No.) Oak Park
California	Yes	Yes	Yes	County System	M. C. Richter, Santa Barbara
Colorado			Yes	Wesley Foster, Boulder.....	S. Francis, Longmont
Connecticut		Yes	Yes	H. W. Coley, Westport.....	L. Wayne Adams, Hartford
				A. W. Yates, Hartford.....	
Delaware					
Florida		Yes			J. J. Wilder, Cordele
Georgia		Yes			R. D. Bradshaw, Notus
Idaho	Yes		Yes	Guy Graham, Boise.....	Jas. A. Stone, Springfield
Illinois			Yes	A. L. Kildow, Putnam.....	Geo. W. Williams, Redkey
Indiana		Yes*	Yes	Frank Wallace, Indianapolis..	Hamlin B. Miller, Marshalltown
Iowa	Yes	Yes*	Yes	F. C. Pellett, Atlantic.....	O. A. Keene, Topeka
Kansas	Yes		Yes	Geo. A. Dean, Manhattan (No.)	
				S. J. Hunter, Lawrence (So.)	
Kentucky			Yes	County System	Prof. H. Garman, Lexington, State Exp. Sta.
Louisiana		Yes			L. T. Rogers, Shreveport
Maine		Yes			O. B. Griffin, Caribou
Maryland	Yes			G. H. Cole, College Park.....	E. N. Cory, College Park
Massachusetts	Yes	Yes	Yes	Dr. B. N. Gates, Amherst....	Thos. J. Hawkins (E.) Everett
					Philip S. Orlenton, Boston
Michigan	Yes	Yes	Yes	B. F. Kindig, E. Lansing....	David Running, Fillon
Minnesota	Yes		Yes	C. D. Blaker, Minneapolis....	L. V. France, St. Paul
Mississippi					
Missouri	Yes		Yes	M. E. Darby, Springfield....	Austin D. Wolf, Parkville
Montana	Yes	Yes			Frank C. Clift, Huntley
Nebraska	Yes	Yes	Yes	County System	
Nevada		Yes			
New Hampshire		Yes			
New Jersey	Yes		Yes	E. G. Carr, New Egypt.....	E. G. Carr, New Egypt
New Mexico			Yes	County System	Henry B. Barron, Hagerman
New York	Yes	Yes	Yes	Com. of Agri., Albany.....	F. Greiner, Naples
North Carolina					S. S. Stabler, Salisbury
North Dakota		Yes			
Ohio	Yes		Yes	N. E. Shaw, Columbus.....	Dr. Ernest Kohn, Grover Hill
Oklahoma	Yes		Yes	Prof. C. E. Sanborn, Stillwater	F. W. VanDeMark, Stillwater
Oregon	Yes				P. S. Farrell, New Plymouth, Ida.
Pennsylvania	Yes	Yes	Yes	J. G. Sanders, Harrisburg...	H. C. Klinger, Liverpool
Rhode Island			Yes	A. C. Miller, Providence.....	Gardner B. Willis, Providence
South Carolina					
South Dakota		Yes	Yes?	District System.....	L. A. Syverud, Canton
Tennessee	Yes	Yes	Yes	J. S. Ward, Nashville.....	J. M. Buchanan, Franklin
Texas	Yes		Yes	F. B. Paddock, College Sta...	Louis Scholl, New Braunfels
Utah		Yes	Yes	County System	Joah Collier, Vernol
Vermont			Yes	J. E. Crane, Middlebury.....	J. E. Crane, Middlebury
Virginia					
Washington			Yes	County System	J. B. Ramage, No. Yakima
West Virginia		Yes	Yes	W. E. Rumsey, Morgantown...	Will C. Griffith, Elm Grove, W. Va.
Wisconsin	Yes	Yes	Yes	N. E. France, Platteville....	Gus Ditmer, Augusta
Wyoming		Yes	Yes	County System	
Ontario, Can.....	Yes		Yes	Morley Pettit, Guelph.....	Morley Pettit, Guelph

* Comb honey excepted.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for the department cannot be less than two lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Amber honey in new 60-lb. cans.
Van Wyngarden Bros., Hebron, Indiana.

FOR SALE.—To the highest bidder, a limited quantity of Michigan's best white extracted honey, in 60-pound tins.

A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—Raspberry, basswood, No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case, extracted, 120-lb. cases, 15 cts. per lb.
W. A. Latshaw Co., Clarion, Mich.

HONEY AND WAX WANTED

WANTED.—Section honey.
J. E. Harris, Morristown, Tenn.

WANTED.—Carload or less extracted honey; also wax.
W. C. Morris, Yonkers, N. Y.

WANTED.—Comb and extracted honey at jobbing prices. Nat. Honey-Prod. Asso., Kansas City, Mo.

WANTED.—Extracted light and amber honey. Give quantity and lowest cash price; can use good clean beeswax.
D. H. Welch, Racine, Wis.

WANTED TO BUY a quantity of dark and amber honey for baking purposes.
A. G. Woodman Co., Grand Rapids, Mich.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up, and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

WANTED.—Extracted light and amber honey of good body and flavor from any state in the Union. Send sample with lowest cash price.
M. E. Eggers, Eau Claire, Wis.

WANTED.—White and light amber extracted honey, in any quantity. White clover and raspberry preferred.
I. J. Stringham, 105 Park Place, New York.

WANTED.—Carload or less extracted honey. State price and quantity. If needed we can supply tins or barrels for your crop.
Hoffman & Hauck, Richmond Hill, N. Y.

BEEWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS that will tempt the buyer to purchase your honey. Neat, attractive labels at right prices. Samples Free.
Liberty Pub. Co., Sta. D, Box 4-E, Cleveland, Ohio.

HONEY LABELS. — Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Ct.

FOR SALE.—Golden-seal seed \$1.25 per thousand.
S. Pitts, Stronghurst, Ill.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

FOR SALE CHEAP.—Forty or fifty comb-supers for eight-frame L. hives. W. I. Lively, G'endalg, Ariz.

FOR SALE.—New 165-lb. honey kegs at 65c each, f. o. b. factory. N. L. Stevens, Venice Center, N. Y.

FOR SALE.—Second hand Root hives and equipment. Write for price.
W. J. Corlett, 107 Arlington Ave., Clifton, N. J.

THE PERFECT Bee-Frame Lifter. For descriptive circular address
Ferd C. Ross, Box 194, Onawa, Iowa.

We carry a complete line of bee-supplies. Ask for our bee-supply catalog. Let us quote you on your requirements. Deroy Taylor Co., Newark, N.Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
White Mfg. Co., Paris, Tex.

THE ROOT CANADIAN HOUSE.—73 Jarvis St., Toronto, Ont., (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

300 gal. wire screens, nearly new, for 8-frame hives; 1 canvas and frame, 12 x 24; summer house; has 2 1/2 wide screened space all around to be opened at will; just the thing for out-apiaries or camping. Used 3 months.
F. W. Morgan, DeLand, Ill.

WANTS AND EXCHANGES

Would exchange a new Barker cultivator for bees and queens.
E. H. Hafford, Fennville, Mich.

Wax and old combs wanted for cash or to make up on shares, beekeeper to factory direct.
J. J. Angus, Grand Haven, Mich.

BEEWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

FOR SALE OR EXCHANGE, one Remington typewriter No. 6. Will take 2 dozen queens or \$15.00 in cash.
Oscar Mayeux, Hamburg, La.

Wanted to exchange a 32 cal. Remington rifle for a foundation mill, green-bone cutter, Barnes make saw or a pair of field glasses.
Wm. S. Ammon, 15 So. Front St., Reading, Pa.

WANTED.—Shipments of old comb and cappings, for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1917 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Sons, Hamilton, Illinois.

GOATS

MILCH GOATS.—"Profit and Pleasure in Goat-Keeping," pronounced by experts the best goat book, regardless of price; profusely illustrated; by mail, 35 cents. Fred C. Lounsbury, Plainfield, N. J.

FOR SALE.—Seven-eighths Toggenburg, milking two quarts daily. Female kid. Both \$30.
F. L. Shaw, 109 Princeton Ave., Elyria, Ohio.

FOR SALE.—One grade Toggenburg goat, good marking, two years old, fresh in May; good milker; price \$20.00, F. O. B.
F. M. Haynes, Rt. 18, Farmland, Ind.

PATENTS

PATENTS SECURED or all fees returned. Patents sold free. Read "Patent Sales Dep." of our 190-page Guide Book, FREE. Send data for actual free search. E.E. Vrooman & Co., 834 F, Wash., D.C.

REAL ESTATE

FOR SALE—By member of this Association, house and lot, honey-house, 500 colonies of bees with first-class equipment. Live railroad town in alfalfa belt of southwest Idaho. Offered for sale on account of ill health. Idaho-Oregon Honey-producers' Ass'n, Caldwell, Idaho.

FOR SALE—House 30 x 30, and 6 acres hillside land. Cellar, 30 x 30, for bees and extracting. Best location possible: 14,000 lbs. last year from 130 colonies. Will sell 50 or 100 colonies bees also. No disease. Other business cause for moving. L. W. Maxwell, Turkey River, Iowa.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. Seagraves, Industrial Commissioner A. T. & S. F. Ry, 1934 R'y Exchange, Chicago.

FARMING IS PLEASANT and profitable in Virginia and North Carolina. Good land, \$15 acre up, easy payments. Climate, schools, churches, roads, and neighbors that make life worth living. Close to markets. Fruit, dairy, and stock farms pay big here. Farm lists, magazine and interesting literature free. Address F. H. LaBaume, Agr'l Agt. N. & W. Ry., 246 N. & W. Bldg., Roanoke, Va.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 DeWolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Cortlandt St., New York.

When it's **GOLDENS** it's **PHELPS**. Try one and be convinced.

FOR SALE—Italian queens. See large advertisement elsewhere. H. B. Murray, Liberty, N. C.

Italian bees and queens. Send for circular. Ira C. Smith, Dundee, Oregon.

FOR SALE—Full colonies fine Italian bees, low price. L. H. Robey, Worthington, W. Va.

FOR SALE—Golden Italian queens. Untested queens 60c each. J. F. Michael, Winchester, Ind.

Queens for July and later delivery. No more rush orders till July 1st. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

Untested Italian queens for sale—1, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Satisfaction guaranteed. F. L. Johnson, Mt. Airy, N. C.

QUEENS OF SUPERIOR QUALITY—Untested, 75c each, \$8.00 per doz.; select untested, 90c each, \$9.00 per doz.; select tested, \$1.50 each, \$15.00 per doz.; extra select breeder, \$5.00. H. N. Major, South Wales, N. Y.

FINE ITALIAN QUEENS—Can furnish select stock at following prices: Single queen, \$1.00; 2 queens, \$1.75; 3 queens, \$2.50; 12 queens, \$9.00; 6 or more at dozen rates. No disease. Safe arrival. Can begin to furnish about May 15. Give me a trial order. Chas. M. Darrow, Star Route, Milo, Mo.

Phelps' queens will please you. Try them and you will be convinced.

FOR SALE—E. E. Mott's strain of Italian queens 75c each, \$8.00 per doz. Send for list. Earl W. Mott, Glenwood, Mich.

Try **ALEXANDER'S** Italian queens for results. Untested, each, 75 cts.; 6 for \$4.25; \$8 per dozen. Bees by the pound. C. F. Alexander, Campbell, Cal.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. Yates, 3 Chapman St., Hartford, Conn.

Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing. A. V. Small, 2302 Agency Road, St. Joseph, Mo.

Italian queens, **THE HONEY-GATHERERS**. Price one dollar each, nine dollars a dozen. Edith M. Phelps, 259 Robinson St., Binghamton, N. Y.

"She-suits-me" bright Italian queens; \$1 by return mail till Oct. 1. Allen Latham, Norwichtown, Conn.

Leather-colored 3-band Italian bees \$1.25 per lb. Tested queens, \$1.00; untested, 70 cts. each. C. H. Cobb, Belleville, Ark.

BARGAIN—Italian queens, \$1.00; 2-frame nuclei with queen, \$4.00. Orville E. Tulip, 56 Lawrence St., Arlington, R. I.

Business first queens. Select untested, \$1.00 each; \$9.00 a dozen: no disease. Price list free. M. F. Perry, Bradentown, Fla.

Black queens. Tested, \$1.00; untested, 75 cts. Safe delivery guaranteed. Frank L. Sanborn, Denmark, Me.

Finest Italian queens, June 1 to November, \$1.00; 6 for \$5.00; my circular gives good methods. Ask for one. J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE—Bright Italian queens at 65 cts. each; \$6.50 per doz.; ready April 15. Safe arrival and satisfaction guaranteed. T. J. Talley, Rt. 3, Greenville, Ala.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each. Henry S. Bohon, Rt. 3, box 212, Roanoke, Va.

Golden and three-banded Italian queens for July, Aug., and Sept. Now, only 55 cents each, 6 for \$3.00, 12 for \$6.00, virgins 30 cts. G. H. Merrill, Pickens, S. C.

FOR SALE—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00. Wallace R. Beaver, Lincoln, Ill.

FOR SALE—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. Wm. S. Barnett, Barnetts, Va.

Queens, Queens, Queens. We are better prepared than ever to supply you. Untested, 75c each; tested, \$1.25 each; select tested, \$2.00 each. See our big illustrated ad on first leaf of this journal. W. D. Achord, Fitzpatrick, Cal.

GOLDEN ITALIAN QUEENS!!! From the best stock; they produce Golden bees unexcelled as honey-gatherers; very gentle; no disease. Select tested, \$1.25; tested, \$1.00; select untested, 75c; untested, 65c; virgins, 35c. Special price on one-half dozen or more. Golden Queen Apiaries, R. Kornegay, Jr., Prop., Mt. Olive, N. C.

Bright Italian queens for sale at 60 cts. each, \$6.00 per doz; virgins, 25 cts. each. Safe arrival and satisfaction guaranteed.

W. W. Talley, Rt. 4, Greenville, Ala.

FOR SALE.—Italian bees and queens. One-pound, two-pound, and three-pound packages, with queens; also on frames and full colonies. Ask for our price list, free beginner's book, and bee-supply catalog.

Deroy Taylor Co., Newark, N. Y.

My bright Italian queens will be ready to ship April 1, at 60 cts. each: virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed.

M. Bates, Rt. 4, Greenville, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. Brockwell, Barnetts, Va.

GOLDENS THAT ARE TRUE TO NAME.—One race only, unt., each, 75 cts.; 6, \$4.25; 12, \$8.00. For larger lots write for prices. Tested, \$1.50; S. T., \$2.00; breeders, \$5.00 and \$10.00.

Garden City Apiaries, San Jose, Cal.

Golden Italian queens from June to November, untested, 75 cts.; 6, \$4.25; doz., \$8.00; tested, \$1.25; 6, \$7.00; select tested, \$1.50; breeders, \$5.00. Bees by pound or nucleus. Pure mating guaranteed. Send for circular. J. I. Danielson, Fairfield, Ia.

FOR SALE.—Three-band Italian queens from best honey-gathering strains obtainable. Untested queens, \$1.00; 6, \$5.00; 12, \$9.00; tested queens, \$1.50 each; 6, \$8.00.

Robt. B. Spicer, Wharton, N. J.

None but the best Queens are sent out by us—three-band Italians that are guaranteed to give satisfaction. Untested queens, 75c; \$8.00 per doz.; tested, \$1.00 each. No disease. Orders filled promptly. J. W. K. Shaw & Co., Loreauville, La.

QUEENS OF QUALITY.—Our Hand-Moore strain of three-banded Italians are beautiful, and good honey-gatherers. Bred strictly for business. Untested, 75c; half doz., \$4.00; select, \$1.00.

W. A. Latshaw Co., Clarion, Mich.

Golden Italian queens that produce gentle golden bees; good honey-gatherers; no foul brood. Select tested, \$1.25; tested, \$1.00; untested, 65 cts.; 6, \$3.75; 12, \$7.00. No nuclei or bees for sale.

D. T. Gaster, Rt. 2, Randleman, N. C.

FOR SALE.—195 colonies of bees and complete outfit. Honey flora includes orange, palmetto, sea-grape, mangrove, and fall bloom. Mangrove yields until Aug. 1st. Will sacrifice if sold soon.

A. E. Ault, Bradentown, Fla.

My 3-banded Italian queens will be ready to ship April 1. Write for prices of bees and queens by the pound. I have few more hundred pounds of bees for sale. Safe arrival and satisfaction guaranteed.

J. A. Jones, Greenville, Ala.

ENERGETIC HONEY-GATHERERS.—Best 3-banded Italian bees and queens. Untested, 75c; tested, \$1.25. Bees, \$1.25 per pound. All orders filled promptly or your money refunded. Safe delivery guaranteed.

Gila Valley Apiaries, Duncan, Ariz.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. Clemons, Rt. 3, Williamstown, Ky.

FOR SALE.—Because of change in business I must sell my 225 colonies of high-bred Italians in ten-frame hives, equipped for extracted and comb honey. Unlimited alfalfa pasture, and home market for all. Splendid opportunity for bee-man in this new country.

A. W. F. Lee, Cordell, Okla.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; dozen, \$9.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Son, Wilcox St., Binghamton, N. Y.

North Carolina-bred Italian queens of Dr. C. C. Miller's famous strain of three-banded Italian bees; July 1 until Oct. 1, untested, 75 cts.; per doz., \$8.00; tested, \$1.00; doz., \$11.00; select tested, \$1.50. Safe arrival and satisfaction guaranteed.

L. Parker, Rt. 2, Benson, N. C.

My choice northern-bred Italian queens are hardy, vigorous, and prolific. May and June, untested, \$1.50; select unt., \$2.00; tested, \$3.00; after July 1, unt., \$1.00; select unt., \$1.25; tested, \$2.00; select tested, \$2.50. Free circular.

F. L. Barber, Lowville, N. Y.

Golden Italian queens of the quality you need, bred strictly to produce Golden bees that are real workers. Untested, one, 75 cts.; 6, \$4.25; 12, \$8.25; 50 or more, 60 cts. each. Prompt delivery and satisfaction guaranteed.

L. J. Pfeiffer, Rt. A, Box 219, Los Gatos, Cal.

Golden Italian queens from a breeder that was a first-premium winner at Illinois State Fair in 1916; untested, 75 cts.; six for \$4.25; doz., \$8.00; select untested, \$1.00; 6 for \$5.00; 12 for \$9.00; tested, \$1.50; 6 for \$8.00.

A. O. Heinzel, Rt. 3, Lincoln, Ill.

Golden Italian Queens, bred strictly for business that produce a strong race of honey-gatherers; untested, each, 75c; 6, \$4.25; 12, \$8.00; for larger lots write for prices. Tested, each, \$1.50. Prompt service and satisfaction guaranteed.

L. J. Dunn, 59 Broadway Ave., San Jose, Cal.

ITALIAN QUEENS, northern-bred, three-banded, highest grade; select untested, guaranteed; queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price, one, \$1.00; 12, \$9.00; 50, \$30.00. Send for circular.

J. H. Haughey, Berrien Springs, Michigan.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

John M. Davis, Spring Hill, Tenn.

FOR SALE.—200 colonies of bees, 150 hives full of combs, 100 new hives; all combs built on full sheets of foundation and wired frames. Gasoline engine, and saws for hive-making; 12 x 14 corrugated-iron honey-house; foundation-mill, extractor and supers, etc. Also 117 acres of unimproved land, all located in one of the best alfalfa-seed-growing sections in northern California. A note with approved surety will take one or both. Reasons for selling. I. C. Bachtel, Lake City, Modoc Co., Cal.

I am again ready to mail queens of my strain of three-band Italians. H. C. Klinger, Sec.-Treas., Pa. State Beekeepers' Assoc. says: "Your queens gave me good results; are prolific; the bees gentle and excellent workers. I am well pleased with them." May 5, 1917. Prices untested, each, \$1.00; 12, \$9.00. Beekeepers of Pennsylvania, New York, and New England states can save on time and express charges on nuclei and bees by pound from here. Price list free. Yours for more honey.

J. B. Hoppeter, Queen breeder, Rockton, Pa.

Golden 3-band Italian and Carniolan queens: Virgin: 1, 50c; 6, \$2.50; 12, \$4.00; 100, \$25.00. Untested: 1, 75c; 6, \$4.20; 12, \$7.80; 100, \$60.00. Select untested: 1, 85c; 6, \$4.80; 12, \$9.00; 100, \$70.00. Tested: 1, \$1.00; 6, \$5.40; 12, \$10.20; 100, \$80.00. Select tested: 1, \$1.25; 12, \$13.80; 100, \$100. Breeders: \$3.00 each. Bees in combless packages: 1/2 lb., 75c; 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei: 1-frame, \$1.25; 2 frames, \$2.25; 3 frames, \$3.00. Add price of queens wanted. We guarantee safe arrival and no disease.

C. B. Bankston, Buffalo, Tex.

50 Tested Italian Queens, \$1.00 each; warranted queens, 75 cts. Satisfaction guaranteed.
Geo. A. Hummer, Prairie Point, Miss.

Queens of my own and Dr. C. C. Miller's 3-banded select stock the rest of this season, 75 cts. each; \$65.00 per 100; tested, \$1.50 each; \$15.00 per dozen; breeders, \$5.00 and \$10.00. A fine breeder sent on two frames of brood in nuclei, \$10.00.
Curd Walker, Jellico, Tenn.

I think so much of my Walker queens and bees that I have been able to induce my friend Mr. Walter Hall to try one. I am quite sure he will find them as good as I recommend. I have in my apiary queens from four different breeders of queens, but the Walker beats them all. When I want more queens yours are good enough for me even if the price is a little steep. J. M. Meadors, Dorton, Tenn.

HELP WANTED

WANTED.—Man to work with bees, season 1917. State age, experience, and wages.
The Rocky Mountain Bee Co., Billings, Montana.

WANTED.—Industrious young man, fast worker, as a student helper in our large bee business for 1917 season. Will give results of long experience, and board and small wages. Give age, weight, experience, and wages in first letter.
W. A. Latshaw Co., Clarion, Mich.

WANTED.—Young man with a little experience, fast willing worker, as student helper with our 1000 colonies. Crop for past two years, 6 carloads. Will give results of our long experience and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer.
E. F. Atwater, Meridian, Idaho.

WANTED.—From Sept. 1 to April able-bodied young man who has had some experience with bees to help work in apiary in New Zealand. State wages wanted, with board furnished; also send references and description of self in first letter. Write J. M. care GLEANINGS. F-4214

WANTED by an experienced apiarist a partner to go south and rear queens and bees for the northern market. We understand queen-rearing, also production of both comb and extracted honey. Would take a position with some large apiarist.
C. Witham, Syracuse, N. Y.

WANTED a good single man 48 or 50 years old who understands bees and farming. Address Mrs. M. Catlin Morse, Owego, N. Y., South Side.

TRADE NOTES

ADVANCING PRICES.

Because of very sharp advances in lumber of all kinds entering into the manufacture of hives and supplies we are obliged to withdraw all prices listed in our catalog and price lists. We are working on new price schedules, and hope to have them in print by Aug. 1. We have quite an accumulation of unfilled orders for which we are making goods as rapidly as possible, and we ought to be caught up soon. On new business received, pending the issue of revised prices we will make prices as close as we can. Advances will be from 10 to 20 per cent. Present prices on most kinds of lumber which we use are forty to fifty per cent higher than they were a year ago, and prices continue to advance, so it is impossible to tell where the end will be.

BARGAIN IN SHIPPING CASES.

Simultaneous with announcement of an advance in all articles made of wood, including shipping-cases we have some old stock of shipping-cases holding twelve and sixteen sections which we are closing out at bargain prices. We not only have a quantity of these at Medina, but also at various branches. There are offered K. D., at \$8.00 to \$10.00 per 100 while they last. Let us know for what size of section you can use them, and the

quantity, and we will advise if we have the size wanted. We have the largest stock fitted to the 4¼ x 1½ section.

SHIPPING-CASES NAILED UP.

We have an accumulation of nailed cases used once, but good to use again, which we are selling at \$10.00 to \$12.00 per 100. We have the largest stock for 24 4¼ x 1½ sections, but can supply some other sizes. If interested, write us, naming quantity wanted and size of section to be used.

60-POUND CANS FOR HONEY.

We have in stock at Medina for shipment as needed five carloads of 60-pound tin cans and 2 cars of friction-top pails chiefly 5 and 10 pound. Until further notice we offer the 60-lb. cans at the following prices. Cans only, without boxes, tied 9 in a bundle, at \$3.60; weight, 24 lbs.; 50 in a crate, \$20.00; weight, 190 lbs.; 2 in a box at \$1.25, or 10 boxes, \$12.00; 50 boxes or more, at \$1.10.

HONEY-BARRELS, SECOND-HAND.

We have accumulated a number of good empty honey-barrels which will serve a good purpose for use again. We offer these as follows:

- 6 30-gal. bbls. of cypress at 75 cts. each.
- 6 50-gal. bbls. of soft wood at \$1.00 each.
- 7 50-gal. bbls. of oak at \$1.25 each.

While barrels are somewhat cheaper than cans at present prices they are not so convenient to empty, especially after the honey granulates. The demand for tin in packing perishable food products is so great that some may be forced to use barrels in packing their honey.

THE A. I. ROOT CO., Medina, O.

Special Notices by A. I. Root

POTATOES, AND THEIR PROMINENCE IN THIS ISSUE.

I hold in my hand the first new potato of this neighborhood this 22d day of June. By the way, friends, perhaps you may think that on account of old age, the war, etc., I never laugh nowadays. Well, the *Plain Dealer*, in speaking of my favorite text relative to the good woman whose "price is far above rubies," suggests that we might put it just now, "Her price is far above 'potatoes.'" *Potatoes*, more precious than rubies! Do you wonder that I laughed until it "began to hurt"?

THE STORY OF RIGBY FARM; HOW JACOB McQUEEN TURNED CLAY HILLS INTO A GARDEN.

The above is the title of a little pamphlet put out by Jacob McQueen, of Baltic, Ohio. Jacob is the son of a veteran beekeeper who was in close touch with GLEANINGS when it was first started. It has been said of me that I ran away from my funeral on a bicycle, and the funeral has not caught up with me yet. Well, Jacob was told by the doctors that he might live a year, but he ran away from his funeral by experimenting with soy beans and nitro-bacteria. His work differs from my potato story in this issue inasmuch as it has the indorsement of our Ohio Experiment Station and experienced veterans in agriculture. In fact, he has been in close touch with the Station thru all his work. His preparation for inoculating legumes is different from that on the market in the fact that it does not need to be "corked up" nor to be used all up when you open the bottle. In fact, it is a dry powder. He says soy beans, with suitable weather, will show the truth of his statement in just ten days. Send and get his twenty-page pamphlet; and if you are anything like myself you will not lay it down until you have read the whole 20 pages. I paid him a visit June 15, and drank of the beautiful spring that was a large factor in restoring him to health, and also rambled over the most beautiful farm and farm home, to my notion, I ever met in my life.

The booklet is sent free of charge, as it advertises his bacteria; and for 10 cents he will send you a sample of the inoculated soy beans that should show the bacteria in ten days after planting.

See his advertisement in this issue.

SPECIAL NOTICE TO ALL BEEKEEPERS IN WISCONSIN, ILLINOIS, INDIANA, AND MICHIGAN.

At the last meeting of the Chicago Northwestern Association a committee was appointed to recommend prices for honey, wholesale and retail. The committee wants the name and address of every beekeeper in the above states, who has ten or more colonies of bees, for a mailing-list. We expect to send out three letters about July 15, Sept. 15, and Nov. 15, provided we have sufficient funds. Hurry up and send in your name and the names of your neighbor beekeepers; and if not a member of this association we should like to have your dues of \$1.50, as we shall need all the funds we can get to send out these letters.

Any beekeeper outside of the above-mentioned states who is not a member can have these reports by sending 10 cts. to pay for printing and postage. Send all names or dues direct to the secretary.

JOHN C. BULL, Sec.

1013 Calumet Ave., Valparaiso, Ind.

The Eastern New York Beekeepers' Association will hold a field day and basket picnic under the old elm tree, at the apiary of the president, W. D. Wright, Altamont, N. Y., on Wednesday, July 25, at 10 A.M. A cordial invitation is extended to all who are interested. Bring your families.

Indian Fields N. Y.

S. DAVENPORT, Sec.

BOOKS AND BULLETINS

"STATE INSPECTION WORK."—New England beekeepers may well rejoice in the fact that their state authorities are right up to the front apiculturally. Massachusetts and Connecticut have each state inspection of apiaries, and their 1916 reports are valuable.

Mr. W. E. Britton, State Entomologist, supervised the apiary work for Connecticut, aided as he was in the actual work by two able assistants, both expert beekeepers. In all of Connecticut 467 apiaries were inspected, in 96 different towns, with a total of 3898 colonies inspected. Of this total of colonies 289 were found with some form of disease, largely the European foul brood. Disease was found in every county in the state, and every year the spread of disease diminishes. Better facilities are being se-

cured, and the work broadened and made more efficient.

In Massachusetts, while the primary object of inspection is to control disease, still the inspectors also teach methods, give object-lessons, and in every way strive to make the beemen more careful and systematic and skillful. An able corps of deputies assists. American foul brood is on the decline in that state, but 80 colonies showing any trace of it. European foul brood is also decreasing slowly, but is by far the worst foe yet of the beemen there, and 377 colonies were found infected with this disease. Dr. Gates, the State Inspector, urges resistant strains of Italian bees for this disease, and promises that a publication is soon forthcoming that will give the data on circumstances, conditions, etc., that make for "immunity to European foul brood." Dr. Gates considers the European more evasive and hence more subtle than the American type.

The 1916 report details the state work of all sorts, including disease eradication, apiary supervision, spraying, reports of wintering, exhibitions, etc. Every beekeeper of the state ought to have this bulletin. Every beekeeper of the country would do well to read it.

"HAPPY, THE LIFE OF A BEE," by Walter Flavius McCaleb—Harper and Brothers, is the title of a charming little monograph just from the press of the big book firm of Harpers, containing 120 pages of delightful imagination. It aims to do for the "kiddies" what Materlinck has done for the "Grown-ups," and we think he has succeeded. The publishers say, "A fascinating story of a bee scientifically true as to facts, and poetic as a fairy tale." I have been reading it to our youngsters and find they listen spell-bound. Even the older ones become interested in the personality of "Happy" and his faithful comrade "Crip." Poor old Crip! How his mishaps and vicissitudes do touch the heart! We notice that the author seems a beekeeper himself; but two or three points show a little variation

SHARPLES

SUCTION-FEED CREAM SEPARATOR

The only separator that skims clean whether you turn it fast or slow. Saves \$40 to \$60 a year extra, due to this wonderful Suction-feed feature (the feed varies with the speed). Has other fine advantages—no discs to wash, knee-high supply tank, ball bearing, etc. Over one million users. Send for catalog. Dept. 126.

Sharples Separator Co. - West Chester, Pa.
Chicago San Francisco Portland Toronto



Books and Bulletins—Continued

from attested facts of the hive. For instance, he states that an egg can become a queen, worker, or drone. That would be true, of course, only before the egg was laid, therefore really before it was an egg, generally speaking.

Again, he makes a robber bee attack "Happy," the bee of the story, in mid air and force him to give up his load of honey in air—interesting in a tale but not quite A B C, is it, Editor Root?

Again, he makes "Happy" go out for several loads of honey before he has acted as nurse-bee or wax-producer. If we know our letters right, that is not the correct order of diversified employment in the economy of the hive. But the interest is not lessened but rather increased by the poetic licenses, for such we must call them, for the book is one charming poem in prose. Get it, all ye who can, and enjoy 120 pages of real treat.

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Untested, 75c each; \$8.00 for 12.

Sel. Tested, \$1.50 each.

Virgins, 50c each; or three for \$1.00.

Bees by pound.

Plans "How to Introduce Queens," and "Increase," 25c. List free.

E. E. MOTT, Glenwood, Mich.



"Our Bees are Gentle."

Nope, you won't get stung if you buy queens from us. Our bees are the hardy, leather colored, showing from three to five yellow bands. We have many letters testifying to their wintering and honey getting qualities. Price \$1 each; \$9 per dozen; \$70 per hundred. Send for our complete price list and booklet describing our high-grade Italian bees.

Jay Smith, 1159 DeWolf St., Vincennes, Ind.

Rhode Island Northern-bred Italian

Queens, \$1.00. Circular.

O. E. TULIP, ARLINGTON, RHODE ISLAND

QUEENS Select Italians; bees by the pound; nuclei. 1917 prices on request. Write J. B. Hollopeter . . . Rockton, Pennsylvania

Forehand's Queens . . . Get a good Queen

One that will keep the hive chock full of bees at all times, make the biggest yields of honey, sting less, and look the prettiest, at a medium price.

Over 25 years of select breeding has brought our queens up to a standard surpassed by none, and the superior of many. We have tried the principal races and every method known, and now we have selected the best race and method—the THREE-BAND BEES and the DOOLITTLE METHOD. We USE THE 3-BANDS—Why? Because they get results.

Dr. Miller, Roots, and Dadants use them.

Our queens are sold by many of the largest dealers in the U. S.

Louis H. Scholl (one of the largest beekeepers of the Southwest) says, "Three-band Italians have proven the best all-around-purpose bee after trying out nearly every race—not only in an experimental way while still at A. M. Col., but in our own apiaries as well." (In Beekeeper's Item.)

Untested	One, \$.50	Six, \$3.00	Twelve, \$ 6.00
Select untested	One, .75	Six, 4.25	Twelve, 8.00
Tested	One, 1.50	Six, 8.75	Twelve, 17.00

Write for price on larger quantities.

Send for circular giving general description. Mail all orders to

W. J. FOREHAND & SONS, Fort Deposit, Alabama

CLOSING OUT

Glass Jars at Special Prices to Close Out Stock

FEDERAL OR SIMPLEX JAR, 1-LB., IN CASES OF 2 DOZ. EACH.



At Medina, 59 cases, 2 doz. each, at \$1.10; 6 for \$6.30; \$1.00 per case for lot.

At Washington, D. C., 3 bbls. of 12 doz. each, at \$5.25 each; \$15.00 for lot. 2 crates of 12 doz. each, \$5.25 each; \$10.00 for lot.

At Mechanic Falls, Me., 26 cases of 2 doz. each, at \$1.10; 6 for \$6.30; \$1.00 per case for lot.

At St. Paul, 2 cases of 2 doz. each, at \$1.10; \$2.00 for lot. At Chicago, 65 cases of 2 doz. each, at \$1.10; 6 for \$6.30; 30 or more at \$1.00.

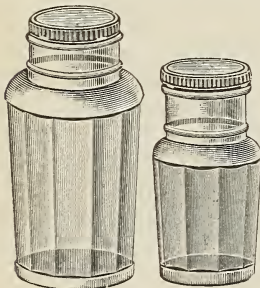
At Philadelphia, 37 cases of 2 doz. each at \$1.10; 6 for \$6.30; \$1.00 per case for lot.

ONE-POUND ROUND JAR IN PAPER RESHIPPING CANS OF 2 DOZ. EACH.



same style of jar, 15-oz. capacity, we have at Mechanic Falls, Me., 300 cases, which we offer at the same price.

TAPER-PANEL JARS IN TWO SIZES, 1 AND 1/2-LB., PACKED IN CASES OF 2 DOZ. EACH.



At Medina, 7 cases, 2 doz. each, 1/2-lb., 90 cts. per case; \$6.00 for lot.

At Washington, D. C., 19 cases, 2 doz. each, 1/2-lb., 90c per case; 85c lots of 6 or over. 28 cases, 2 doz. each, 1-lb., \$1.10 per case; \$6.30 for 6; \$1.00 case for lot.

At Mechanic Falls, Me., 21 cases, 2 doz. each, 1-lb., \$1.10 per case; \$6.30 for 6; \$1.00 case for lot.

At St. Paul, 23 cases, 2 doz. each, 1/2-lb., 95 cts. case; \$20.00 for lot.

At Chicago, 30 cases, 2 doz. each, 1-lb., \$1.10 per case; \$6.30 for 6; \$1.00 case for lot; 10 cases, 2 doz. each, 1/2-lb., 90 cts. per case; \$8.50 for lot; 3 1/2 gross in crates of octagon jars holding about 1 pound, very similar to the 1-lb. taper-panel, only straight, offered at \$3.50 per gross; \$10.00 for lot.

At Philadelphia, 28 cases, 2 doz. each, 1-lb., at \$1.10 or \$6.30 for 6, \$1.00 case for lot; 84 cases, 2 doz. each, 1/2-lb., at 90c per case, or 85c in lots of 6.

MASON FRUIT-JARS IN THREE SIZES, PUT UP 1 DOZ. IN A CASE.



At Medina, 169 doz., 1-pint jars, 50 cts. a doz.; \$5.70 for 12 doz.

At Medina, 312 doz., 1-quart jars, 55 cts. doz.; \$6.00 for 12 doz.

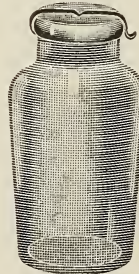
At Medina, 70 doz., 2-quart jars, 85 cts. a doz.; \$9.00 for 12 doz.

At Mechanic Falls, Me., 10 doz., 1-pint jars, 50 cts. a doz.; \$4.75 for lot. 59 doz., 1-quart

jars, 85 cts. a doz.; \$6.00 for 12 doz. 13 doz., 2-quart jars, 85 cts. a doz.; \$9.00 for 12 doz.

At Philadelphia 20 cases of 1 doz. each, 1-pint Premium jars, at 75c per doz.; \$12.00 for lot. 7 cases of 1 doz. each, 1/2-gal. Premium jars, at \$1.10 per doz.; \$7.00 for lot.

TIPTOP JARS WITH GLASS TOP, RUBBER RING, AND SPRING-TOP FASTENER.



At Medina, 8 crates, 1 gross each, 1-lb., at \$5.50 per crate; 27 cases, 2 doz. each, 1/2-lb., at \$1.00 per case; lot at 90 cts.

At Washington, D. C., 8 cases, 2 doz. each, 1/2-lb., at \$1.00 per case; lot at 90 cts.; 11 cases, 2 doz. each, 1-lb., at \$1.10 per case; lot at \$1.00. 3 crates, 1 gross each, 1/2-lb., at \$5.00 per crate; \$14.00 for lot.

At St. Paul, 6 cases, 2 doz. each, 1-lb., \$1.10 per case; \$6.00 for lot.

At Chicago, 25 cases 2 doz. each, 1-lb., \$1.10 per case; \$25.00 for lot.

At Philadelphia, 7 crates, 1 gross each, 1 lb., at \$5.50 per crate. 287 cases, 2 doz. each, 1-lb., at \$1.10 per case; lot at \$1.00 per case. 4 crates, one gross each, 1/2-lb., at \$5.00 per crate; \$19.00 for lot. 10 cases, 2 doz. each, 1/2-lb., at \$1.00 per case; lot at \$9.50.

SQUARE JARS WITH CORKS IN VARIOUS SIZES.



At Medina, 8 cases, 1 gross each, 1/2-lb., with cork, \$3.75 per case. 22 cases, 2 doz. each, 1-lb., spring top, \$1.10 per case. 2 cases, 6 doz. each, 2-lb., with cork, \$3.75 per case. 21 cases, 2 doz. each, 1/4-lb. with aluminum screw cap, 75c per case, 70c per case for lot.

At Washington, D. C., 2 gross, 1-lb. sq. jars with cork, \$5.00 per gross. 7 gross, 2-lb. sq. jars with cork, \$7.50 per gross. 1 gross, 1-lb. sq. jars with cork, \$5.25 per gross.

At St. Paul, 18 cases, 1-lb. sq. jars with cork, \$1.10 per case, \$18.00 for lot. 3 cases, 1/4-lb. sq. jars with cork, 75c per case, \$2.00 for lot. 1 case, 1/2-lb. sq. jars with cork, 90c per case. 1 case, 2-lb. sq. jars with cork, \$1.50 per case. 1 case, 1/2-lb. round Hershisier jar with aluminum cap, \$1.00.

1 case, 1-lb. round Hershisier jar with aluminum cap, \$1.20.

At Chicago, 6 cases, 1/4-lb. sq. Hershisier jar with aluminum cap, 70c case. 8 cases, 1-lb. sq. Hershisier jar with aluminum cap, \$1.20 case. 2 gross, 1/4-lb. sq. Hershisier jar with aluminum cap, \$3.75 gross, \$7.00 for lot. 1 gross, 1-lb. sq. Hershisier jar with aluminum cap, \$6.00.

At Philadelphia, 8 crates, 1/2 gross each, 2-lb. square jars, at \$3.75 per crate or \$7.50 per gross.

Send orders to Medina for stock listed as being at Medina or to the branch where stock is listed.

The A. I. Root Company, Medina, Ohio

AROUND THE OFFICE

M.-A.-O.

When you were a small and temporarily naughty child were you ever parentally led out to the woodshed and given a good spanking? Well, if you have ever had this useful experience, you know how the Man-Around-the-Office is just now feeling. Here I am in the back-end woodshed of GLEANINGS, dethroned from the position of a regular department, deprived of a pretty typographical scroll ornament at the top of my page, and otherwise humiliated. More of this "otherwise" sort, too, than you think. I suppose this is the spanking I get for having used bad language. I told 'em (the Roots) that this "language" was quoted language—not my own. But no use. They told me I could "get the heck out" (that's just exactly what they meant altho they didn't use precisely those words) and go way back and try to behave myself on the back pages among the advertisers. They'd give me one more chance back here—and then, if— — —. Yes —, IF some of you other department editors or the United States populace in general don't rise up and speak a good word for me and liberty of language pretty durned golly quick, I'll go right out thru the back cover into nowhere next time. But I ain't proud. I am sticking in for oncet again, anyway, right back here where I have been shoosed to.

I wish you all knew Mr. A. I. Root as I have known him for many long years. He's all wool and a yard wide—and more. He's around the office here a good deal nowadays (when he isn't in his garden or working with his chickens), and he's a sort of traveling benediction to all of us. Every last man, woman, and child around the big shop and office have only kind thoughts and good will for "the grand old man" of the establishment. I am going to draw a pen picture of him in these columns some day—and so I won't go on in this strain any more just now, except to mention one of his characteristics that quite frequently gets him in on the butt end of a joke, when he laughs about it with the rest of us. This characteristic is that of "thinking no evil." He comes as near to measuring up to that standard as any man I have ever known. Some of his friends even say that he is pretty nearly blind to cunning evil—tho I don't think so. But let's let an incident illustrate. He's tremendously opposed to all false advertising and advertising misrepresentation. Nothing hurts him worse than to have some unworthy adver-

BANKING BY MAIL AT 4%

First and Last

"Make money first, but make it last," is an old saying that contains a world of wisdom.

Many people find it easier to make money than to keep it. For this reason the best plan is to open a Savings Account BY MAIL in this strong institution and deposit all surplus funds.

Accounts may be opened with small as well as large sums, and deposits may be easily and safely sent in the form of check, draft, money order, or the currency by registered mail.

Write for detailed information about this plan that assures complete safety and 4 per cent interest.

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A. T. SPITZER, Pres.
E. R. ROOT, Vice-Pres.
E. B. SPITZER, Cashier.

ASSETS OVER ONE MILLION DOLLARS

FREE

"How to Judge Engines." Tells the difference between good engines and unreliable engines. Witte Kerosene Engines 2 to 22 1/2 H.P. Sold direct. No dealers. 60 days' trial; cash or easy terms; 6-year guarantee—Ed. H. Witte.
Witte Engine Works
1930 Oakland Avenue,
Kansas City, Mo.
1930 Empire Building,
Pittsburgh, Pa.



CASH

paid for butterflies, insects. Some \$1 to \$7 each. Easy work. Even two boys earned good money with mother's help and my pictures, descriptions, price list, and simple instructions on painlessly killing, etc. Send 2c stamp at once for prospectus.
SINCLAIR, Box 244, D 62, Los Angeles, Cal.



Around the Office Continued

tiser steal into GLEANINGS' columns under false cloak—and he makes it pretty lively for the editorial force if they ever permit it, however innocently done. He's always, always, warning against the false and evil advertiser. Well, recently he has been investigating the claims of those "strong men," with great muscles and powerful chests, who advertise to make over any man physically by their gymnastic lessons and training courses—and publish their own Achilles-like busts to prove it. In the same category, Mr. Root has been searching out the advertised claims of those wonderfully shapely women who print their own pictures to prove that they can surely direct their sisters everywhere how to be just as shapely—at so much per direction. In his investigations of these much printed "fair women and brave men" he wrote to a certain famous editor in New York asking for the truth about their claims, and, in referring to one of the most widely picture-published woman-bust promoters, he said to this editor: "I have had my eye on her for years." What do you suppose he got back from that editor? Well, he got a letter larruping these men and women frauds in general; but at the very tail of the letter he also got this: "I observe that you say that you have had your eye on her for years. As for me, I am frank to say that I think the eyeing of such characters is liable to take our thoughts away from the more serious duties of life." At a distance of 500 miles, no one could quite hear that editor chuckle as he put this stinger in the tail of his pen creation; but we've heard some local chuckling around the office here by the worldly who have seen the letter. The only point is that A. I. Root thought no evil when he wrote as to having his "eye on her"—absolutely none. I am not so sure about the New York editor fellow. Don't blame him, tho, for being unable to resist the temptation of putting in the twister.

We here around the office have undergone some modification of our views regarding dandelion honey production. We have been whacked and whaled about our now strictly former views on this subject from Marengo, Illinois, to Middlebury, Vermont, and back again. So you might think we would feel disposed to be mighty reticent on the whole dandelion question. But we aren't, and want to try once more by remarking that the festive dandelion is a versatile little cuss. Experience (evolu-

PATENTED COG GEAR

MYERS COG GEAR PUMPS

Operate **33 1/3%** Easier



You cannot imagine the difference between a MYERS COG GEAR "Easy Operating" PUMP and a pump of any other make until you start to pump water. Then you quickly discover that the "Rolling Motion" Cog Gear construction performs an important service, saving 33 1/3% of your pumping labor every time you take hold of the handle whether you only pump a bucket or a barrel of water.

So popular has this feature become through its successful labor saving qualities that we now use the Cog Gear Construction on Myers Hand and Windmill, Deep and Shallow Well Pumps, House Pumps, Pump Stands, Hydro-Pneumatic Pumps, Tank Pumps, Spray Pumps and even on some styles of Myers Power Pumps.

This places within your reach and at no advance in cost, through the thousands of Myers Dealers, a Myers Cog Gear "Easy Operating" Pump designed for your particular needs. Remember this when you are ready for a new pump, and save yourself a lot of time and hard work in the years to follow.

Attractive booklets on request.

F.E. MYERS & BRO.
351 ORANGE ST.
Ashland, Ohio.

PUMPS HAY TOOLS and DOOR HANGERS

VICTOR and HOME VICTOR

Multiple System Water Heaters for House Heating



Heats bath and kitchen boiler too. ONE STOVE AND ONE FIRE YEAR ROUND. There is nothing like it. Send for booklet.

S. V. Reeves, Mfr.
Haddonfield, N. J.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

Kill All Flies! They Spread Disease

Placed anywhere, **Daisy Fly Killer** attracts and kills all flies. Neat, clean, ornamental, convenient, and cheap.



Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Ask for

Daisy Fly Killer

Sold by dealers, or 6 sent by express, prepaid, \$1.00.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.

Around the Office—Continued

tion) has taught him one especially serviceable trick in the line of self-preservation. He used to come forth in the spring as a strong man to run a race, erect his flag-pole anywhere from 6 to 15 inches high, and proceed to blossom up there and scatter his seeds from that eminence. This worked all right till the frolicsome lawn-mower came along—and then it didn't. But did the dandelion knuckle to a little bother like a lawn-mower? He did not much. He of the lawn variety just proceeded to take his blossom off the high blossom-pole, throw the pole away, and now comes up out of the ground blossom first or blossom in a hand satchel, "lays low" to the ground, and remarks as the lawn-mower passes harmlessly above him, "never touched me." Some evolutionary class to that variation to meet new conditions of environment, eh? And how durned mad it makes the lawn-mower!

* * *

The ginseng and golden-seal raisers occasionally get tangled up in the wrong kind of roots. Just to prove it, "listen here." The A. I. Root Co. issues an annual supply catalog—many thousands of them—which is popularly called the Root catalog. That sounds just like any other kind of root catalog. So a fellow who is a root-grower or a root-collector or a root something from down in Pennsylvania, sends along this letter to The A. I. Root Co.: "Thought I would send for your catalog on roots. If you people do not handle roots any more than raising them, would be pleased if you would send me the address of some reliable firms that you are acquainted with that buy

Miller's Strain Italian Queens

By Return Mail

Northern bred from my best *Superior Breeders*; in full colonies; for business; three-banded; gentle; hustlers; winter well; not inclined to swarm; roll honey in. Untested, \$1.00; 6 for \$5.00; 12 for \$9.00; select untested, \$1.25; 6 for \$6.00; 12 for \$11.00. Virgins, 1 to 3 days old, 50 cts. each, at sender's risk. Safe arrival and satisfaction guaranteed in U. S. and Canada. Specialist of 20 years' experience.

Isaac F. Miller, Brookville, Pa.
Route 2

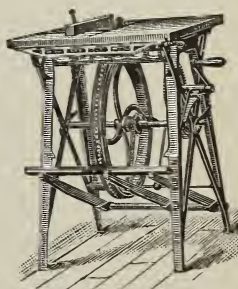
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

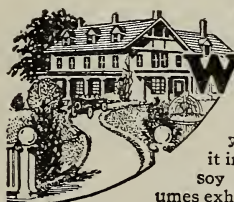
Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.
545 Ruby St
ROCKFORD, ILLINOIS



The Song of the Hour "How Would You Like to be a Slave?" Soprano solo with piano. Every American should hear it. It's great. Only 25c postpaid, silver or money order.
C. O. WEIDMAN, Medina, Ohio.



This or This Wealth or Poverty

on your farm depends upon the richness of your land in nitrogen. Nature's way is to put it in the ground through leguminous plants—clover, soy beans, alfalfa, vetch, etc. Uninoculated legumes exhaust the land—naturally inoculated legumes enrich it.

Nature's Easy Way
Makes Poor Land
Good—Good Land
Rich.

*McQueen's
Inoculator*

Guaranteed to Pro-
duce Nodules.
Pumps Nitrogen
from the Air.

produces greater crops, enriches the land, and never fails. Bacteria are bred under adverse conditions. Only the strongest survive, and these will make your legumes grow. **Get Our Free Book**—Learn how McQueen

McQUEEN BACTERIA CO.,

made clay hills into a garden spot, discovered Nature's Way, and bred nitrogen bacteria full of pep, and guaranteed to live and work anywhere. Write today—it's dollars in your pocket.

Box 332, Baltic, Ohio

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . 25 Years a Queen-breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1 00	5.00	9.00	.75	4.00	7.00
Tested	1.50	8.00	15.00	1.00	5.00	9.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies . . .	6.00	30.00		5.00	25.00	
10-frame colonies . . .	7.50	38.00		6.50	32.00	
1-2 lb pkg. bees	1.50	7.00		1.00	5.00	
1-lb. pkg. bees	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dunn's reference book.

H. G. Quirin, Bellevue, Ohio

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS
That fill the super quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.00; six, \$5.00; 12, \$9.00.

Select untested, \$1.25; six, \$6.00; 12, \$11.00.

Safe arrival and satisfaction guaranteed.

Circular free.

J. P. MOORE,
Queen-breeder Route 1, MORGAN, KY.

By Return Mail

Choice Italian Queens

Each . . . \$.75 Six \$4.25
Twelve . . 8.00 Twenty-five 15.00

J. B. Hollopeter, Rockton, Pa.

Around the Office—Continued

roots." I say, isn't that getting some tangled in 'em? I wrote him that they raised Roots here till they were all over the place, but that none of us try to handle them much (rest censored).

Just to show that things are "on the move" in Russia: A few days ago, GLEANINGS received word from the publisher of the Russian bee journal that its place of publication had been removed from Petrograd to the city of Kazan. So far as I know anything about Kazan, it might just as well have been moved to Susie Ann. The point I am trying to make is that Russia for two months past has seemed to me more like an apiary where robbing had got started than anything else on the footstool.

Of course, we all had to begin. The Garden of Eden was just a beginner. But some beginners begin more than other beginners seem to have to begin—that is, they are further off before they start to begin. One of the salesmen of a big beekeepers' supply house tells me that a letter came to his department the other day asking for a price on "one family of bees and house; also quote on bees by the quart or peck." It just illustrates my wise talk about varying degrees of beginning—that's all.

A good friend of mine up at Sherburn, Minn., sends the copy of an advertisement that has run for two seasons in his local paper, that reads thus: "For Sale—Combed and strained honey.—A—. L——." My friend comments that "A. L." doesn't take GLEANINGS or he would know that honey isn't "combed." Thanks for that boost for GLEANINGS. He further says: "If combed honey should become popular, it might be well for The A. I. Root Co. to make up those old-fashioned wooden pocket-combs for either the beekeepers or bees to comb it with."

Here is an astonishing astounder that can be traced directly to the lair of R. F. Holtermann—for he said it: "Speaking of immunity reminds me that Mr. Stewart, of New York State, considers himself to be quite immune to mosquitoes. He says that in handling so many bees his blood has become so inoculated with bee-poison that any mosquito that has the audacity to bite him is instantly killed. 'At least,' ventured Mr. Stewart, 'I have never known a mosquito to come back after a second dose.'"

QUEENS

Our July, August, and September SPECIAL PRICE on untested leather-colored and Golden queens---a bargain never offered to the American beekeeper before.

Prices on 1 to 10 queens, 60 cts. each
 " 11 to 25 queens, 55 cts. each
 " 26 to 100 queens, 55 cts. each
 " 100 to 1000 queens, 48 cts. each

Safe delivery. If not satisfied, return queens, and get your money back. The Root Company, The American Bee Journal, Dadant & Sons, any mercantile agency, and others will tell you who we are.

The Penn Company . . Penn, Miss.

Queens from Dr. C. C. Miller's Best Breeders

We have made arrangements with Dr. C. C. Miller to keep us supplied with some of his best breeders, and are rearing queens from these superior mothers that we guarantee to be as good as can be reared. These queens are not just individuals that have made a good yield; we all have some colonies that made a good showing, but all do not have a strain that holds the world's record as his does. Think of it—a whole yard of 72 colonies averaging 266 sections weighing 244 pounds. You are getting at a low price the results of fifty years of careful breeding of one of the most successful beekeepers in the world. Safe arrival and entire satisfaction guaranteed on all goods sold.

One untested Miller queen, \$1.00, \$11.00 per dozen. Tested, \$2.00. Ex. Select Tested, \$3.50. Breeders, \$5.00 to \$10.00 each.

One pound bees, \$1.25; ten or more, \$1.00 per pound. Two pounds, \$2.25; ten or more, \$2.00 each. One frame nuclei, \$1.25; two frame, \$2.25; three frame, \$3.25. Add price of queen wanted. Full colonies a specialty.

The Stover Apiaries
Starkville, Miss.

QUEENS

For Sale

Red-clover 3-band Italian queens; Root's, Moore's, Davis', extra-select stock, mated with Geo. H. Hows' famous select drones. I know none better for honey-gathering, wintering, beauty, etc. I guarantee 90 per cent pure mated if queens are returned to me. Queens or money back in a reasonable time. No foul brood, no bee disease; apiaries inspected by Mr. Rea and Prof. Franklin Sherman, Jr. Mr. Rea is our bee inspector of this state.

	Price before July			After July 1st		
	1	6	12	1	6	12
Untested queen . .	.75	4.00	8.00	.75	3.25	6.50
Select untested . .	1.00	4.50	8.50	.80	3.75	7.00
Tested	1.25	6.00	10.00	1.25	5.00	9.00
Select tested	1.50	8.00	13.00	1.50	6.00	10.00
Extra select tested	2.00	10.00	15.00	2.00	8.00	13.00
½ lb. bees with qn	2.00	10.00	16.00	1.75	8.00	14.00
1 lb. bees with qn	2.50	12.00	20.00	2.00	10.00	17.00

I can furnish bees in lots of 25, 50, and 100 pounds. I am in position to give prompt service this season. My bees are of a famous foul-brood-resisting strain.

H. B. Murray . . Liberty, N. C.

Queens . Queens . Queens

We are making a specialty of untested queens, and are prepared to send either large or small quantities out promptly, generally by return mail. Every queen guaranteed to be entirely satisfactory. Goldens after June 15th at the same price. We spare neither labor nor money in producing the best queens. Quality counts the most with us.

One queen, 75c; 12, \$8.00; 25 to 1000, 60c each. After July 15, one, 55c; 12, 50c; 25, 45c. One pound bees, \$1.25; 10 or more, \$1.00 per pound. Two pounds, \$2.25; 10 or more, \$2.00 each. One frame nuclei, \$1.25; two frame, \$2.25; three frame, \$3.25. Add price of queen wanted. Full colonies a specialty.

The Stover Apiaries, Starkville, Mississippi

After June 20 address will be Mayhew, Miss.

Queens Hardy, Long-lived, and Disease-resisting Queens

20 YEARS OF SELECT BREEDING GIVES US QUEENS OF HIGHEST QUALITY
QUEENS FOR HONEY PRODUCTION—QUEENS OF UNUSUAL VITALITY

"There are few queens their equal and none better"

What Bees Do Headed By Our Queens

"One swarm made 185 sections of honey and another 296 sections. I am well pleased."
Kimmell, Ind. MELVIN WYSONG.

"Your bees averaged 150 lbs. of surplus honey each. I find them not only hustlers but also gentle."
Meredosia, Ill. FRED H. MAY.

"I have tried queens from several different places and like yours best of all."
Alabama, N. Y. C. O. BOARD.

"We are only one mile from Lake Erie, and exposed to high cold winds; in fact, this is the windiest place along the Great Lakes. Your bees were able to stand the winter with only an insignificant loss, and we would have no others. As for honey they averaged 175 pounds of extracted surplus, did not swarm, and gave an artificial increase of 30 per cent, which is as fine a record as can be had in this locality, especially when the work is done entirely by amateurs."

Name furnished by request, North East, Pa.

Price List of Golden and 3-Band Italian Queens by Return Mail.

Untested 50 cts. each, \$45.00 per 100	Tested \$1.00 each, \$ 90.00 per 100
Select untested . . 65 cts. each, \$50.00 per 100	Select tested \$1.25 each, \$110.00 per 100

We Guarantee Our Queens to Arrive Safely, That They are Very Resistant to European Foul Brood, and, in Fact, to Give Full and Complete Satisfaction.

Wings clipped free of charge.

Our Capacity is 1500 Queens Monthly.

M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.

Increase Your Honey Crop

by introducing some of Leininger's strain of Italian Queens which have a record of 30 years as to honey-gathering qualities and gentleness are unexcelled. Disease has never appeared in our apiaries. Queens will be ready June the first. Untested each, \$1; 6, \$5. Tested, each \$1.25; 6, \$5.50. Breeders, \$5.

FRED LEININGER & SON, Delphos, Ohio

SOUTHERN BEEKEEPERS

Get the Famous Root Goods Here

Veils, 65c; Smoker, 90c; Gloves, 65c pair; wire-imbedder, 35c; honey-knife, 80c; 1-lb. spool wire, 35c; medium-brood foundation, 1 to 11 lbs. 58c per lb.; 11 to 25 lbs., 56c; 50 or 100 lb. lots, 53c. Ten-fr. wood-zinc excluders, 50c each; Hoffman frames, \$3.75 per 100. Honey-extractors for sale. I am paying 28c cash, 29c trade, for wax.

J. F. Archdekin, Bordlonville, Louisiana.

Immediate Shipments: Telegraph Us.

Superior Foundation

(Weed Process). Special prices on quantity lots.

Old Combs

We render on shares. Our steam process removes every ounce of beeswax.

Honey-cans

We are fortunate in securing several carloads. Try us for prompt service.

Honey Sections, Extractors

Etc. Every thing in bee supplies.

Superior Honey Company, Ogden, Utah

LOCKHART'S SILVER-GRAY CARNIOLANS

"LINE BRED" for the past 31 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, \$1.00; six for \$5.00; dozen for \$9.00. Select untested queen, \$1.25; six for \$6.00; dozen for \$11.00. Tested queen, \$2.00; six for \$9.00; dozen for \$15.00. Select tested, \$3.00. Best breeder, \$5.00. Extra select, very best we have, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & COMPANY . . . LAKE GEORGE, NEW YORK

Queens of Superior Quality

Select Three-banded Italian
or Leather Color

All orders, no matter how large or how small, will be greatly appreciated and acknowledged the same day they are received.

Safe arrival guaranteed.

Queens' wings clipped according to your direction free of charge.

	1	12
Untested	\$.75	\$ 8.00
Select untested90	9.00
Select tested	1.50	15.00
Extra select breeder..	5.00	

H. N. MAJOR
South Wales, New York

Queens . . Queens

From a strain of Italians, wintered for thirty years in the foothills of the Adirondack Mountains out of doors. Hardy, gentle, industrious, and fine resisters of disease. \$1.00 each, or \$9.00 per dozen; also nuclei and full colonies.

Charles Stewart, Box 42, Johnstown, N. Y.

Bees and Queens

Full Colonies, Nuclei
and Pound Packages

We have about the finest lot of bees we ever had before in our history. We have now the Wardell strain, which has been moved to Medina, and we also have our celebrated Pritchard strain, both of which have so far shown themselves to be practically immune to European foul brood. Our yard has been carefully inspected by the State Inspector and we are prepared now to furnish queens and bees in pound lots, nuclei or full colonies.

We are also able to furnish our fine strain of queens, Italians that are bred for business as well as immunity to European foul brood.

Untested Italian Queens, each..	\$1.00
3 Untested Italian Queens, for...	2.75
6 Untested Italian Queens, for...	5.00
12 Untested Italian Queens, for...	9.00
25 Untested Italian Queens, each..	.70
50 Untested Italian Queens, each..	.67 1/2
100 Untested Italian Queens, each..	.65
Select untested, each.....	\$1.25
Tested, each.....	2.00
Select tested, each.....	3.00
Home-bred virgin50
Breeding queens from \$5.00 to \$25.00	

We are now able to make prompt shipments from Medina, in most cases by return express. Remember that we are the pioneers in the combless packages of bees and our guarantee is very broad and liberal.

The A. I. Root Co., Medina, O.

My Three-banded Italian Bees

After June 20th I sell 3-frame nuclei with untested queen for \$3.50. Colonies in a new hive, 8-frame, \$8.00. Our government urges a larger production of honey. "Get busy." Send for circular.

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We are well supplied with a fine stock of Root's Goods for the following season; and if a saving of time and money means anything to you. Mr. Beeman, wherever you are, don't overlook getting our catalog and prices.

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A 3-fr. nucleus colony and Italian queen in a shipping-box, \$5.10; tested Italian queens, \$1.50; untested, \$1.10.

Our location enables us to get goods to you promptly.

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Select, three-banded, leather-color Italians—bred for honey production. . .
Untested queens, 75c each; 6, \$4.25; 12, \$8.00. . . Descriptive circular free.

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Capacity of Yard over 1000 Queens a Month

After 20 years of careful selecting and breeding I now have a strain of bees that cannot be excelled by any. . . . My queens are all bred from IMPORTED STOCK, the very best in the world for honey-gathering and gentleness. They are not given to swarming. What more do you want in bees than the three above qualities?

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Untested	\$.50			Tested	\$1.25	\$7.00	\$13.00
Select untested..	.75	4.25	8.00	Select tested ...	2.00	11.00	20.00

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Untested queens, June to November.....	\$.80	\$4.40	\$ 8.00	\$30.40	\$ 60.00
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Select tested queens, June and November.....	1.60	8.00	14.00	52.00	100.00

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From May 1 until June 1

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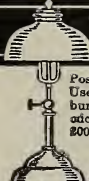
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Tested, . . .	1.00; " 5.00; " 9.00

Select tested, \$2.00 each. See ad. in April 1 "Gleanings."

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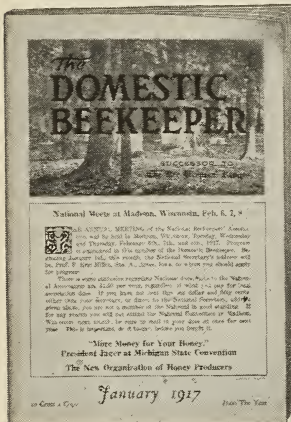
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